Public Utilities

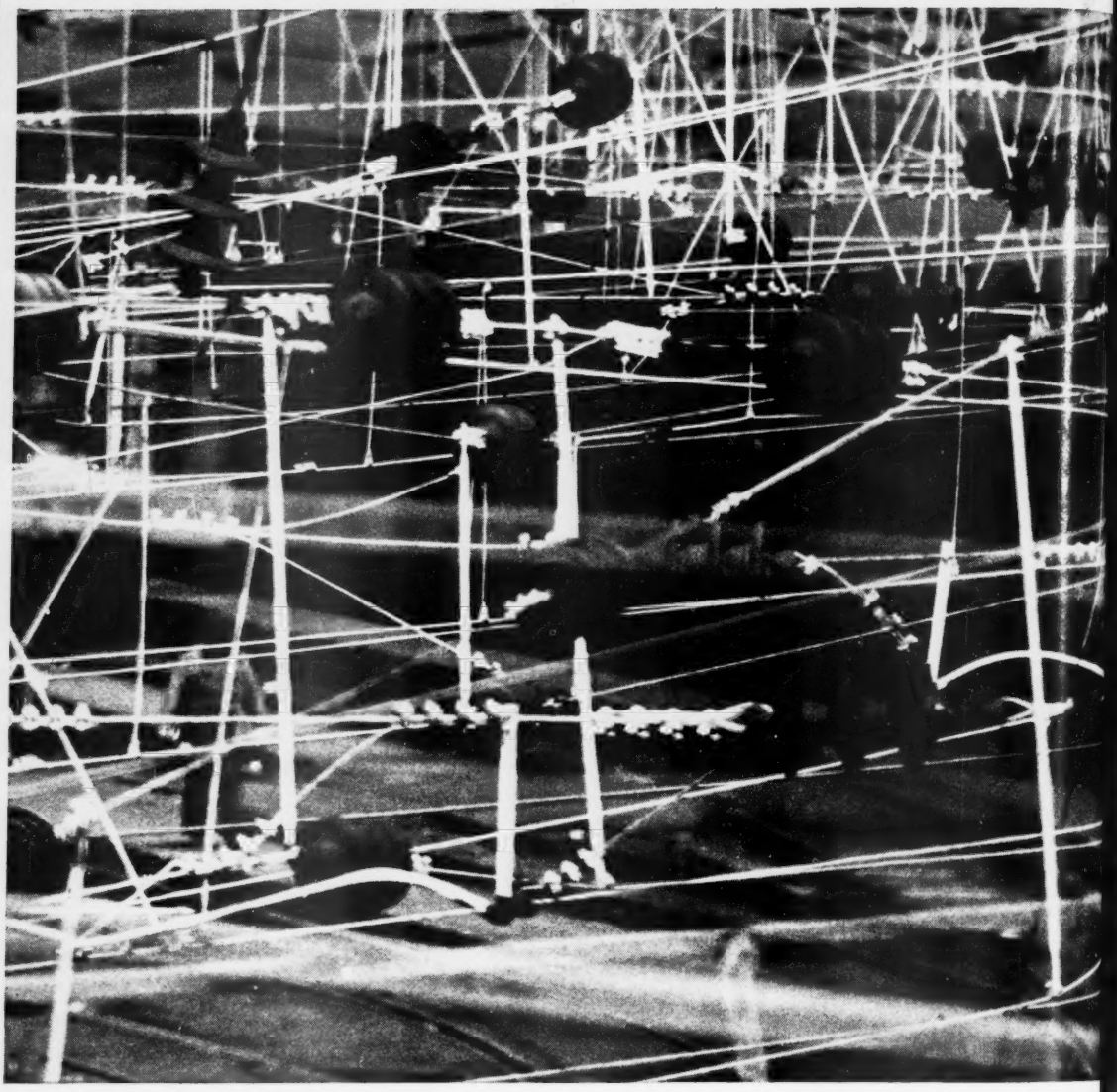
FORTNIGHTLY



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Public Utilities FORTNIGHTLY

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ARTICLES

Planning for Tomorrow's Power — *Sherman R. Knapp* 793
The electric companies will have to place special emphasis on research and co-operation.

Power for National Security and Growth — *Hon. Stewart L. Udall* 800
Both government and industry can co-operate in meeting the challenge of the future in electric power production.

The Delaware River Basin Compact — *Hon. Francis E. Walter* 805
A discussion of the various features of the Delaware River Basin Compact program.

A Farm Family Visit to a Powerhouse — *Robb M. Winsborough* 810
The author takes us on a bus ride to a Minnesota generating station of the Interstate Power Company.

Secure Power for Rural Co-operatives — *Hon. Norman M. Clapp* 818
Present REA policy as it may affect the electric utility companies, as well as the co-ops.

Electric Rates of the Future ..... *Stuart W. John* 823
The importance of greater simplicity of rate forms and features in future rate making.

Recent Developments in Nuclear Power — *Herbert B. Cohn and Stephen E. Davis* 829
Some of the current problems in the development of nuclear power.

Ten Reasons for Growing Interest in Street and Highway Lighting ..... *J. Stanford Smith* 836
A challenge for all in developing modern, efficient highway lighting.

FEATURE SECTIONS

Financial News and Comment ..... *Owen Ely* 843
What Others Think 852
Salt Water Conversion and the Power Industry ... 852
Bell and USITA Fight Excise Tax 855
What Is Ahead for Atomic Power? 857
Atomic Power in New York State 860
The March of Events 861
Progress of Regulation 865

INDUSTRIAL PROGRESS

Where Is the Electric Utility Industry Going from Here? 57
Exclusive statements by more than fifty electric company executives. Compiled by Francis X. Welch, editor.

• *Pages with the Editors* .. 6
• *Coming in the Next Issue* 10
• *Remarkable Remarks* .. 12
• *Utilities Calendar* 55
• *Frontispiece* 56
• *Index to Advertisers* ..116

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HEADQUARTERS

Pages with the Editors

ONCE more it is our pleasure to salute the Edison Electric Institute on the occasion of its twenty-ninth annual convention in New York city, June 5th to 7th. This special issue, which has been devoted mainly to material of interest to the electric industry, contains so many fine articles by distinguished authors that we can do little more in these pages except give a brief description of their association and activities, and pictures of several who have not written for us before. We commend especially to our readers' attention the collection of statements by nearly threescore electric utility executives which is contained in the feature, "Where Is the Electric Utility Industry Going from Here?" beginning on page 57.



SHERMAN R. KNAPP

FOLLOWING our annual custom, we lead off with an exclusive message prepared for the readers of PUBLIC UTILITIES FORTNIGHTLY by the president of the Edison Electric Institute, SHERMAN R. KNAPP, who is a born native of Connecticut, and an engineering graduate of Cornell. He has been with The Connecticut Light and Power Company since 1928 and is now president of that utility.

WE also include in this issue articles by two high officials of the new Kennedy administration. First, is the HONORABLE STEWART L. UDALL, Secretary of the Interior, former member of Congress from Arizona and a graduate of the University of Arizona. There is also the HONORABLE NORMAN M. CLAPP, REA Administrator, for many years a newspaper publisher in Wisconsin and former administrative assistant to the late Senator Robert M. LaFollette, Jr. A Phi Beta Kappa from Lawrence College at Appleton, Wisconsin, ADMINISTRATOR CLAPP is a brother of Gordon Clapp, former chairman of the TVA.

FROM the ranks of government we also



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CANADIAN SECURITIES · EXTERNAL DOLLAR SECURITIES



NORMAN M. CLAPP



J. STANFORD SMITH

welcome in this issue the HONORABLE FRANCIS E. WALTER, Democrat of Easton, Pennsylvania, and a graduate of Georgetown (LLB) and George Washington (BA) universities. He was first elected to the 73rd Congress and has served continuously ever since. He is now chairman of the House Un-American Activities Committee.

FROM the ranks of the electric utility industry we have a wealth of talent representing management, engineering, and the law. ROBB M. WINSBOROUGH, vice president and director of the Middle West Service Company, and a graduate of Rice Institute of Houston, Texas, came to the utility business via the oil fields in the Southwest in the late twenties. STUART W. JOHN, manager of the rate department of Commonwealth Services Inc., is an electrical engineering graduate from the Massachusetts Institute of Technology. He joined the Dallas Power & Light Company as a rate engineer in 1927.



STUART W. JOHN

FROM the legal profession we have HERBERT B. COHN, vice president and chief counsel of the American Electric Power Service Corporation and a graduate of Yale (AB) and Harvard University Law School (LLB). His coauthor and associate counsel is STEPHEN E. DAVIS, a graduate of the University of Pennsylvania (BA) and Columbia Law School (LLB). J. STANFORD SMITH, chairman of the street lighting section of the National Electrical Manufacturers Association, and a graduate of DePauw University, has been general manager of General Electric's outdoor lighting department at Hendersonville, North Carolina, since 1958.

WE regret that limitations of space in these pages prevent us from publishing all of the pictures of these fine authors and giving more biographical details. But the expectation that we shall have future occasions to present more contributions from them in regular issues leads us to hope that we shall have a further opportunity to let our readers know more about them.

THE next number of this magazine will be out June 22nd.

The Editors

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Coming in the Next Issue...

JUNE 22, 1961, ISSUE

THE EFFECT OF PRICE INFLATION ON ELECTRIC UTILITIES

In spite of the outstanding performance of the electric utility industry in serving the nation, and in spite of the prospects of limitless growth, the electric utilities have not fully compensated their owners when their performance is measured in realistic terms. This is the view of C. P. Guercken, assistant to the vice president, Ebasco Services Incorporated. Mr. Guercken considers that realistic measurement of such performance would entail consideration of the constant purchasing power of a dollar through the reluctance or inability of regulatory commissions to consider economic depreciations even for a fair value rate base and the inadequacies of depreciation allowance deductions for income tax purposes.

PUBLIC UTILITIES AND PEOPLE—INSIDE THE CUSTOMER

This is the second of a three-part series of articles dealing with three different aspects of public relations for utility companies. In the first instalment, published in the May 11th issue, these authors, James W. Carpenter, former vice president of the Long Island Lighting Company, and Robert T. Livingston, professor of industrial and management engineering at Columbia University, covered the approach of public relations as considered inside the utility company organization. In their second instalment they consider the same problems from the standpoint of the utility customer. In a forthcoming and concluding instalment, the view will be taken from the standpoint of performance of utility companies in community affairs.

A ROUNDUP ON SPACE COMMUNICATIONS ACTIVITIES

In a special sense, the communication industries right now are like the little boy in the Christmas poem who went to sleep with visions of sugarplums dancing through his head. The sugarplums in this case are the proposed interspatial communication satellites which are supposed to go a long way towards taking over, at greatly reduced cost, a tremendous amount of transoceanic telephone and other communications traffic. But who will run the show and how will it be organized —at least as far as American communication interests are concerned? Herbert Bratter, Washington business and economic author, has canvassed this situation in the light of various proposals and counterproposals for "fielding" a team of satellites in orbits around the earth for communication relay purposes.

AND IN ADDITION . . . ***Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.***



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Total capitalization . . . . . up 12% to $416,117,000
Sales (kilowatt hours) . . . . . up 6% to 4,639,000,000
Instantaneous Peak load
(kilowatts) . . . . . up 10% to 1,272,000
Earnings per common share . . . . . up 10% to $1.96
Gross property and plant . . . . . up 7% to $464,358,000
Revenue . . . . . up 7% to $88,958,000

excerpted from the 1960 Annual Report

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Remarkable Remarks

"There never was in the world two opinions alike."
—MONTAIGNE

A. M. PIPER
Editor, Council Bluffs (Iowa) Nonpareil.

"The United States will be a great and prosperous nation only so long as the state is the servant of its citizens, not the master of its subjects."

DR. GLENN T. SEABORG
Chairman, Atomic Energy Commission.

"The great bulk of scientific discoveries were made by men of better-than-average intelligence but who were by no means in the genius category."

JAMES G. PATTON
President, National Farmers Union.

"A federation of American agriculture is an absolute necessity in these days of co-ordinated effort in all other segments—labor, business, and industry."

NORMAN M. CLAPP
Administrator, Rural Electrification Administration.

"Much of the task of creating greater opportunity in rural America must fall to rural electric co-operatives. . . . The co-operative approach is in the finest tradition of American free enterprise."

EDITORIAL STATEMENT
Springfield (Ohio) Sun.

"Bad spots in the educational picture call for a touch-up brush, not a spray gun. The gigantic bureaucratic apparatus in Washington, abetted by liberalist and labor interests which openly espouse Socialism, are exploiting transient, undifferentiated, often limited or localized educational problems for the purpose of staging an educational revolution."

LEROY COLLINS
President, National Association of Broadcasters.

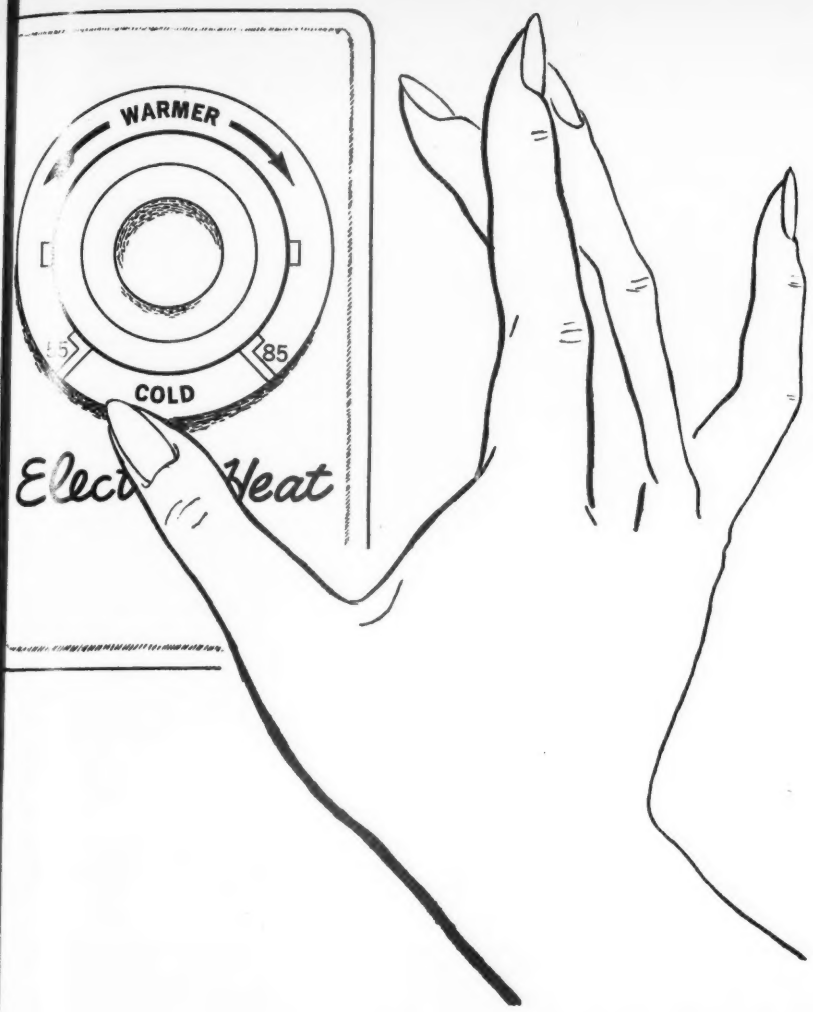
"If the nation expects broadcasters to make outstanding contributions to the public interest—and it does, and it should—then broadcasters must not be driven into economic and legal corners from which they are precluded from making such contributions. For a broadcaster's desire to serve the public interest can be only as meaningful as his ability to serve."

EDITORIAL STATEMENT
The Wall Street Journal.

"One of the nonmanufacturing fields in which employment has grown greatly—41 per cent—in the past ten years is government at all levels. In fact, there are more local, state, and federal government workers than there are plant workers in all the durable goods industries. Perhaps that is what the employment specialists—not to mention the squashed taxpayer—should really be worrying about."

HENRY FORD II
Chairman of the board, Ford Motor Company.

"America needs more than ever before an atmosphere of mutual trust and confidence among such major elements of our society as industry, labor, and government. Without that confidence, we will not only be less effective in meeting the goals of our country, we will present to the world at large the image of a quarrelsome, divided, and possibly corrupt society. World Communism could not ask for a better gift than this."



She's "firing her furnace" with coal-by-wire . . .

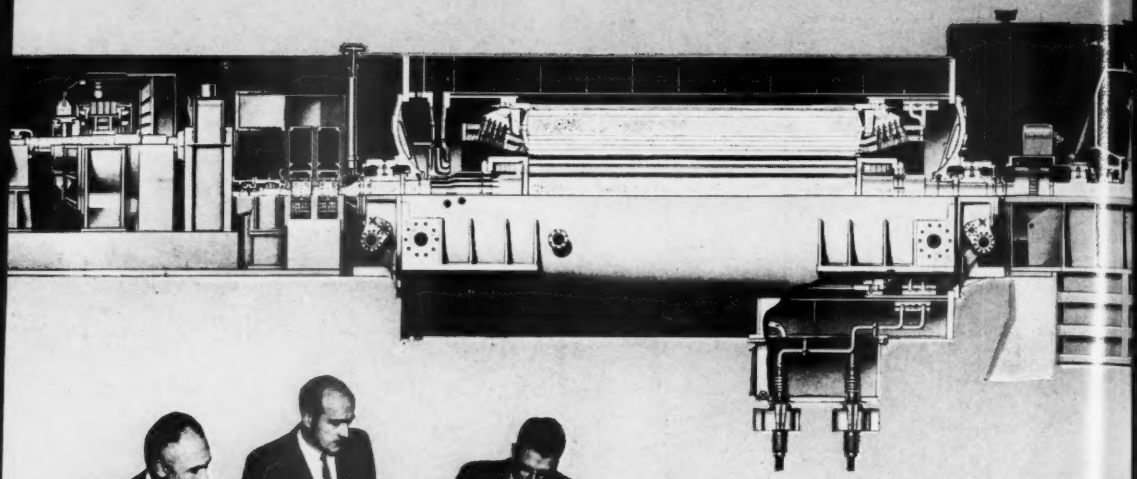
Electric home heating is a reality. It's *clean* (because it's flameless), *health* (because it's even and draft-free) and *economical* ($195 a year for a typical bedroom home in Pittsburgh). That same electric power can cool your home the summer, do your washing and ironing and a thousand other useful jo both in your home and in industry.

Today, more than half of all the electricity consumed is generated from bi minous coal. Consolidation Coal Company is constantly working with the el tric utility companies to help maintain electricity as the *best* value in your fam budget. The ever increasing use of electricity today makes coal more importa than ever to the growth and welfare of our nation.

Basic research on new and improved uses for coal is a never ending task Consol laboratories, where the slogan "*Pioneering in Coal Progress*" was bo And each new year makes that slogan more meaningful.

Consolidation Coal Company

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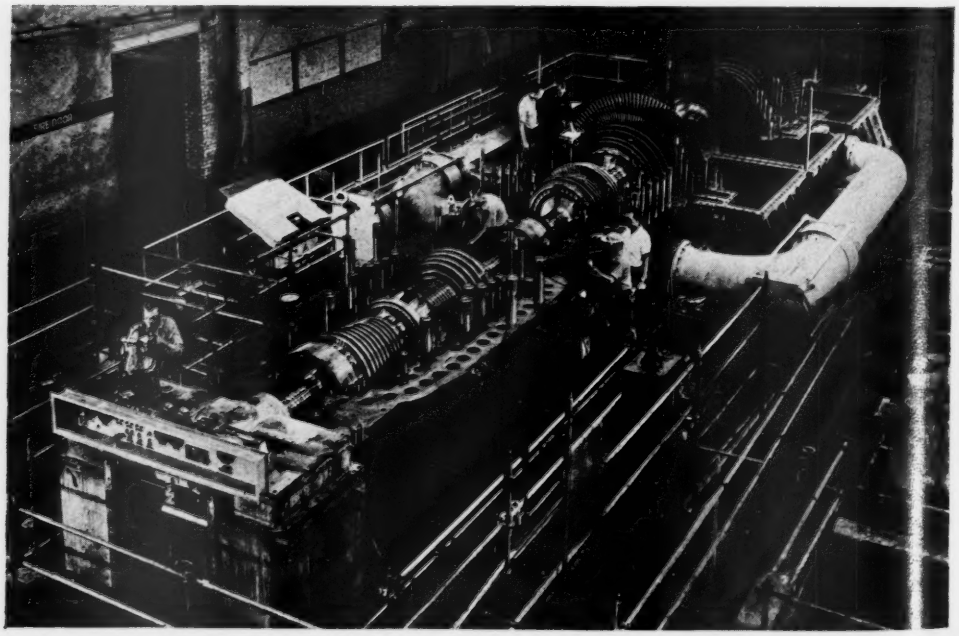


Design Firsts by Allis-Chalmers

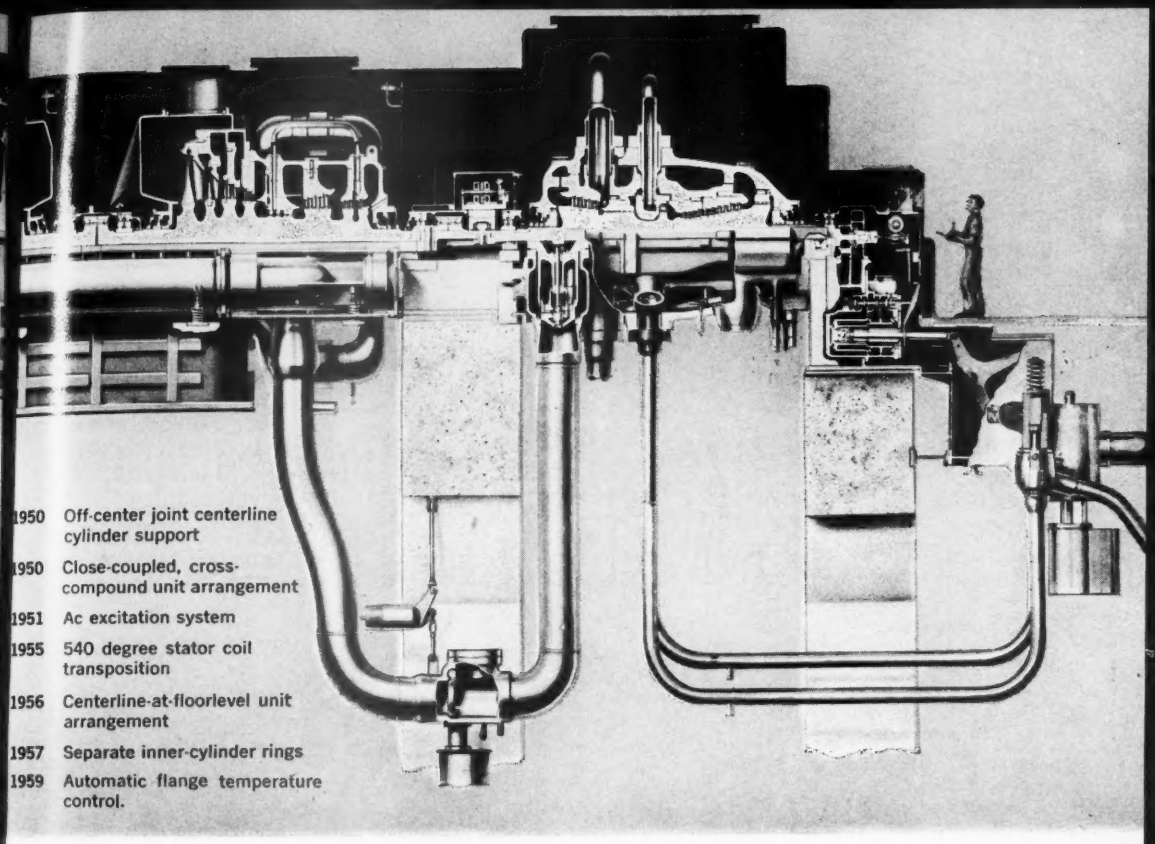
1926	Side-crossunders
1934	Separate nozzle chests
1936	Thrust-type hydrogen seals
1941	Nonsliding thrust-bearing pedestals
1948	Supercharged axial ventilation

Designing today for tomorrow's power needs, Allis-Chalmers experienced, forward-thinking engineering staff has pioneered higher ratings and unique arrangements for steam turbine-generator units . . . originated and patented many of the design features now adopted as industry standards for such equipment.

PACING



Engineering know-how and the results of extensive research and development programs are confirmed on the large turbine test pits. During the past few years A-C has spent millions of dollars expanding and modernizing manufacturing facilities like these to assure that design excellence created on the drawing board is translated into the finished product.



1950 Off-center joint centerline cylinder support

1950 Close-coupled, cross-compound unit arrangement

1951 Ac excitation system

1955 540 degree stator coil transposition

1956 Centerline-at-floorlevel unit arrangement

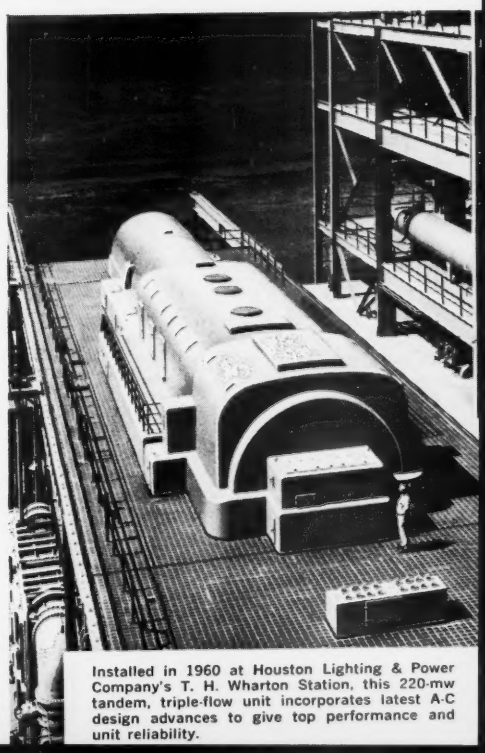
1957 Separate inner-cylinder rings

1959 Automatic flange temperature control.

POWER PROGRESS ...by design!

An Allis-Chalmers tandem triple-flow steam turbine-generator unit, for example, incorporates such industry-recognized A-C developments as . . . centerline-supported inner and outer high-temperature cylinders; thrust-balanced turbine elements with high-temperature steam connected to a single shaft of small diameter; separate below-floor front-mounted steam chest; and separate ring-type nozzle chest in a center-inlet high-pressure turbine. Also hydrostatic thrust-bearing-type shaft seals for the full supercharged generator.

These advanced design concepts add to Allis-Chalmers growing list of firsts — set new industry standards for performance and continue the pattern by which A-C paces power progress . . . ahead of utility requirements.



Installed in 1960 at Houston Lighting & Power Company's T. H. Wharton Station, this 220-mw tandem, triple-flow unit incorporates latest A-C design advances to give top performance and unit reliability.

ALLIS-CHALMERS

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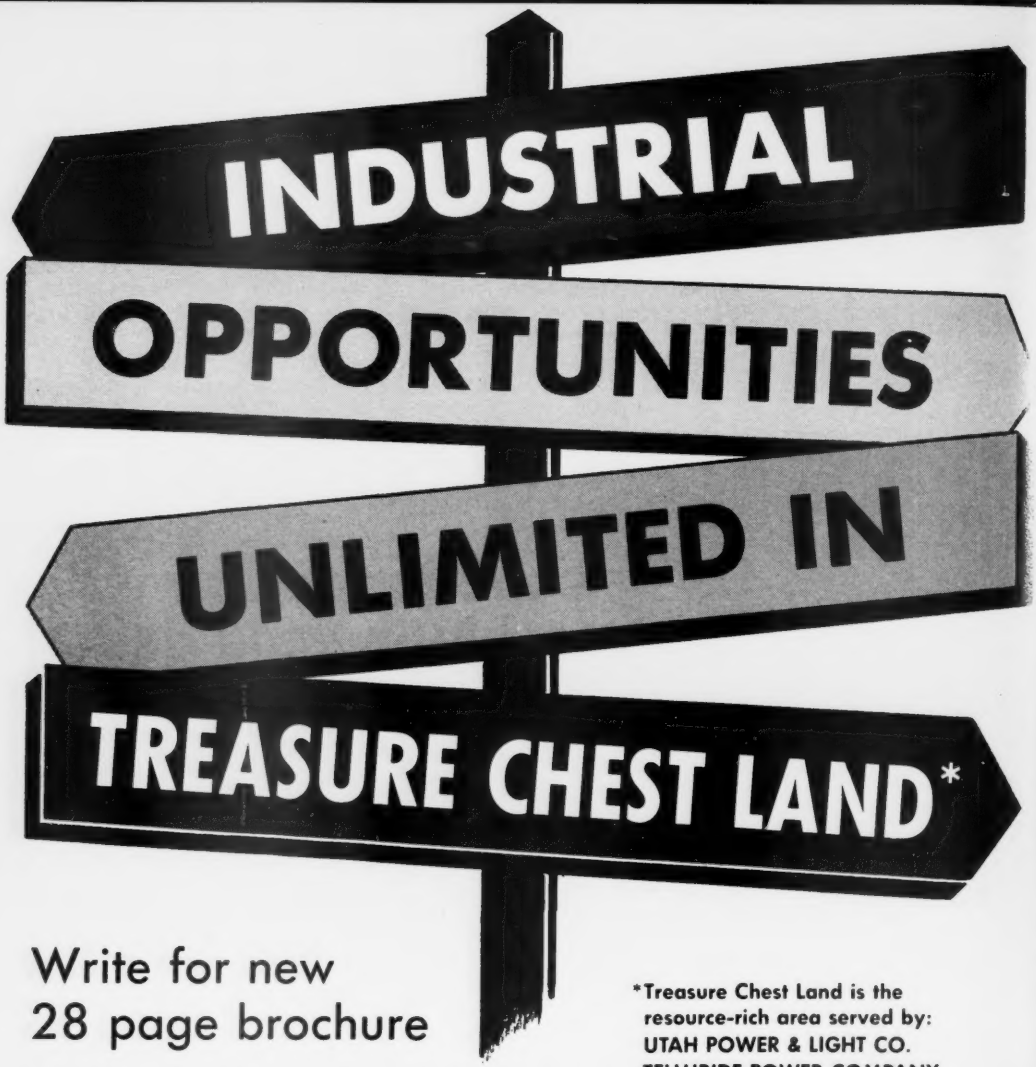
You discourage the foreign trade that last year netted the U. S. a healthy $5 billion trade surplus.

You encourage the idea that U. S. manufacturers should rely on protection instead of competition.

None of these are good for you or for the United States.

BROWN BOVERI

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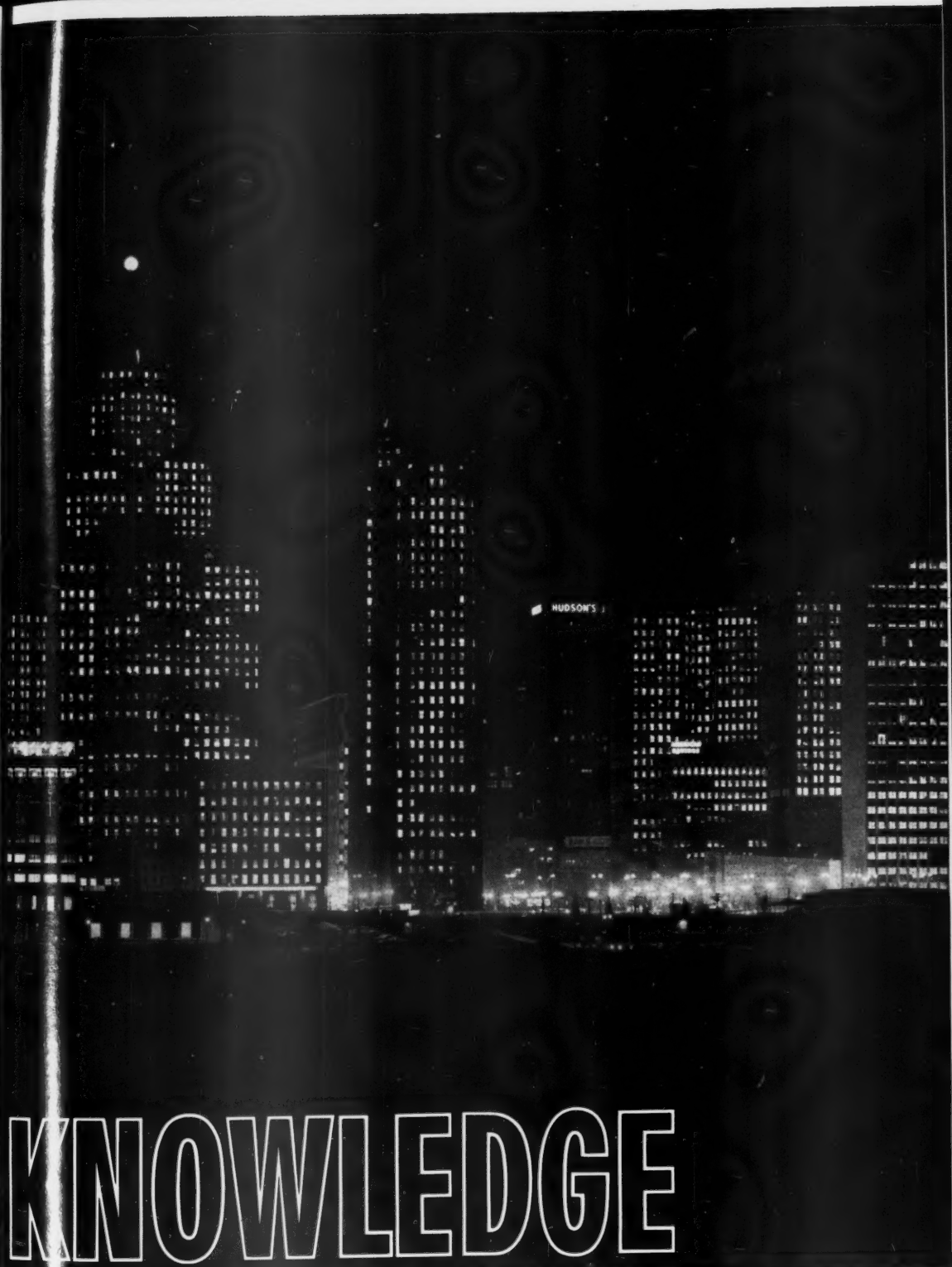
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A Growing Company in a Growing West

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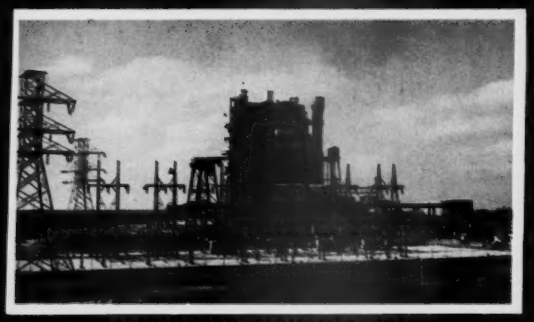
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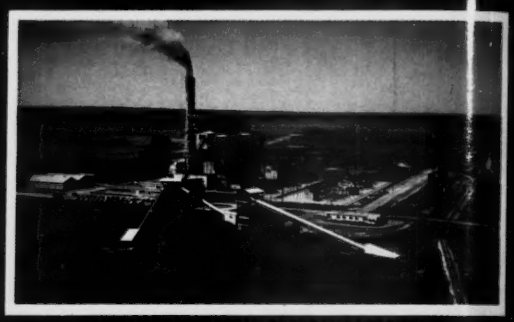
GRAHAM STEAM ELECTRIC STATION
(Unit No. 1)—220,000 KW
for Texas Electric Service Company



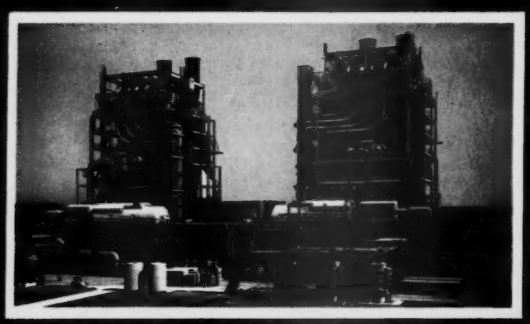
OCOTILLO STEAM ELECTRIC STATION
(Unit Nos. 1 and 2)—220,000 KW
for Arizona Public Service Company



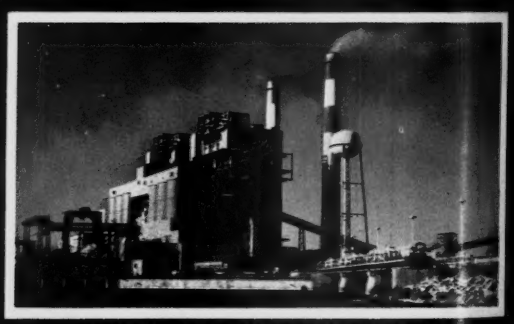
PORT JEFFERSON POWER STATION
(Unit No. 4)—185,000 KW
for Long Island Lighting Company



MONTROSE STEAM ELECTRIC STATION
(Unit No. 2)—175,000 KW
for Kansas City Power & Light Company



SAM BERTRON STEAM ELECTRIC STATION
(Unit No. 4)—220,000 KW
for Houston Lighting & Power Company



DAVE JOHNSTON STEAM ELECTRIC PLANT
(Unit No. 2)—100,000 KW
for Pacific Power & Light Company



YOKOSUKA THERMAL POWER STATION, in Japan (Unit No. 1)
—265,000 KW—International General Electric Company
for Tokyo Electric Power Company, Inc.



NORTH LAKE STEAM ELECTRIC STATION,
(Unit No. 1)—175,000 KW
for Dallas Power & Light Company

'S ALBUM OF ACHIEVEMENT



NOXON RAPIDS HYDROELECTRIC DEVELOPMENT
(Unit No. 4)—100,000 KW
for The Washington Water Power Company



T. H. WHARTON STEAM ELECTRIC STATION
(Unit No. 2)—220,000 KW
for Houston Lighting & Power Company

in 1960 12 more major projects completed

Shown here are the 12 major Engineering and Construction Projects EBASCO completed during 1960 at a total cost of $290 million. Located in seven states as well as in Japan and Brazil, they range in cost from $9 million to $54 million.



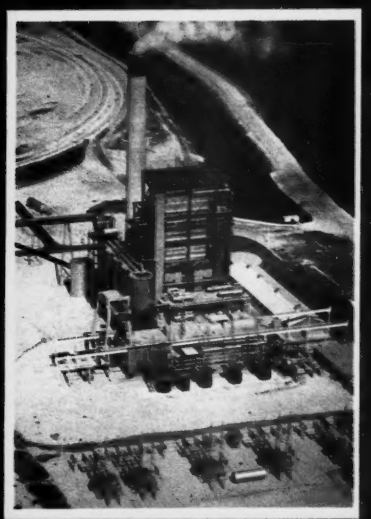
PEIXOTO-FURNAS-BELO HORIZONTE
345-400 Kv Transmission Line in Brazil
for Central Eletrica de Furnas S. A.

Our brochures describe EBASCO'S services and how they may be of use to you. For copies, write to Ebasco Services Incorporated, Dept. 7, Two Rector Street, New York 6, N. Y.

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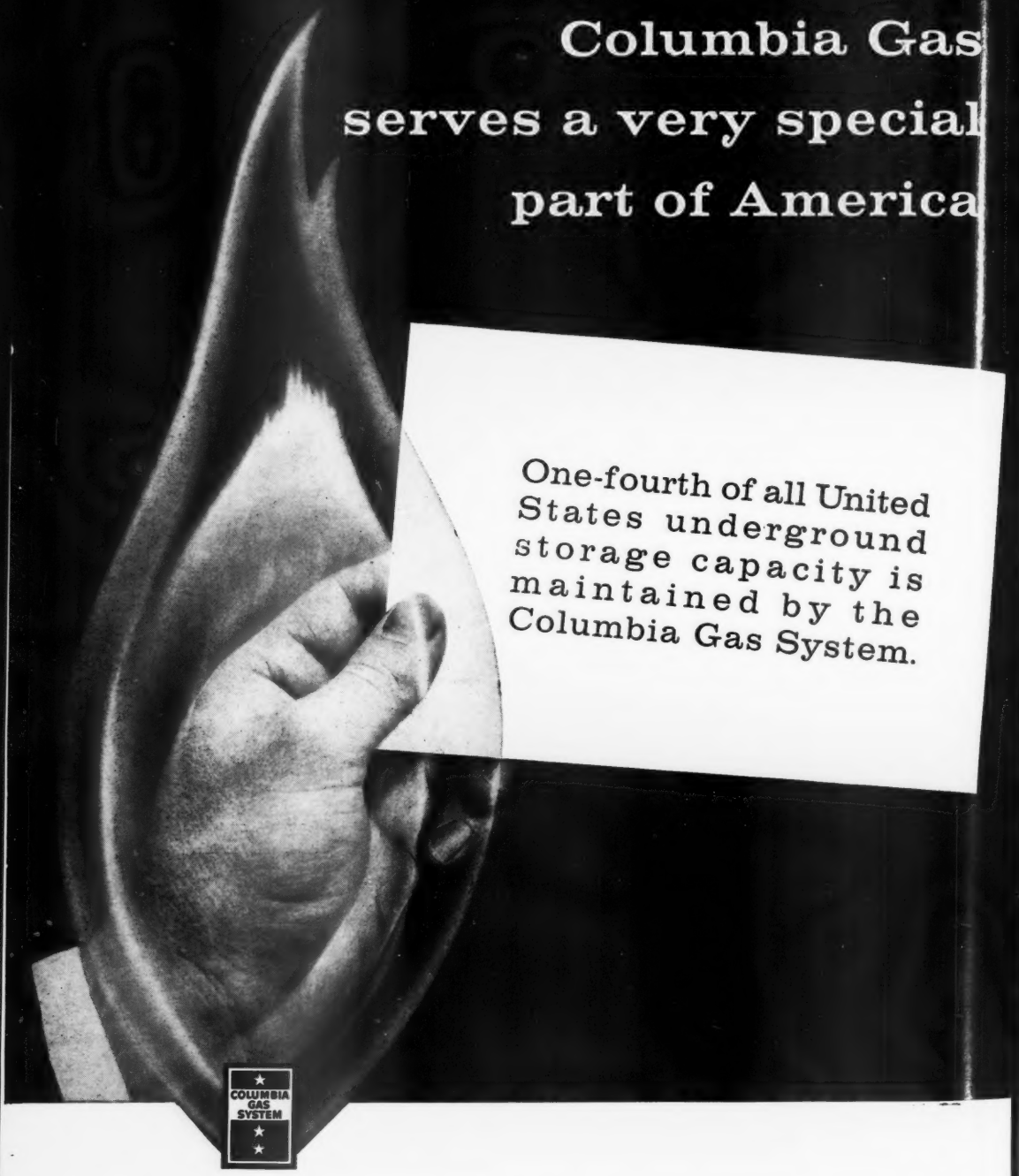
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H. B. ROBINSON STEAM ELECTRIC PLANT
(Unit No. 1)—182,000 KW
for Carolina Power & Light Company

Columbia Gas serves a very special part of America



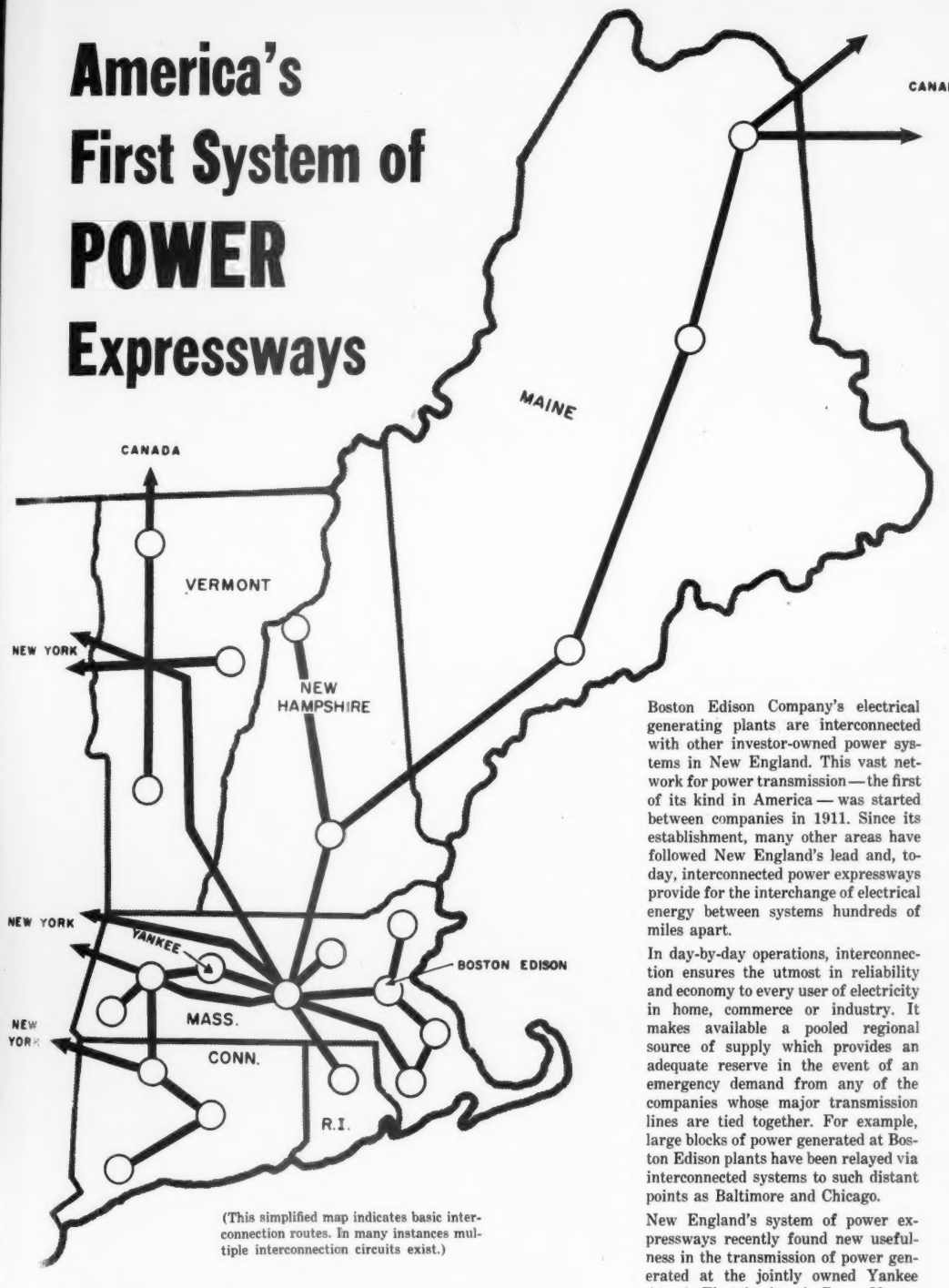
Throughout its service territory—in Ohio, Pennsylvania, West Virginia, Kentucky, Virginia, Maryland and southern New York—natural gas continues to be the *preferred fuel* for home and industry.

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America's First System of POWER Expressways



(This simplified map indicates basic interconnection routes. In many instances multiple interconnection circuits exist.)

Boston Edison Company's electrical generating plants are interconnected with other investor-owned power systems in New England. This vast network for power transmission — the first of its kind in America — was started between companies in 1911. Since its establishment, many other areas have followed New England's lead and, today, interconnected power expressways provide for the interchange of electrical energy between systems hundreds of miles apart.

In day-by-day operations, interconnection ensures the utmost in reliability and economy to every user of electricity in home, commerce or industry. It makes available a pooled regional source of supply which provides an adequate reserve in the event of an emergency demand from any of the companies whose major transmission lines are tied together. For example, large blocks of power generated at Boston Edison plants have been relayed via interconnected systems to such distant points as Baltimore and Chicago.

New England's system of power expressways recently found new usefulness in the transmission of power generated at the jointly owned Yankee Atomic Electric plant in Rowe, Massachusetts, one of the first atomic power plants in America.

In 1961, as in the past, Boston Edison looks ahead and plans ahead . . . in order to meet every new requirement for electricity within its service area of forty cities and towns.

Boston EDISON Company

An investor-owned electric utility serving more than one and one-half million people in Greater Boston

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THE PLACE:
ANYWHERE in FLORIDA

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(b) Add Florida sunshine
(c) Cool with fragrant ocean breezes
(d) Plus fun-filled outdoor living
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RESULT: Happy, contented tourists enjoying the "time of their lives" throughout the year in growing Florida . . . vacation kingdom of the world.

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Rambler for '61...



American 4-door Super Sedan—For 1961 the Rambler American is more compact *outside*, yet has room for six average adults *inside*. A Rambler American Custom swept to first place over all other compacts in the 1960 Mobilgas Economy Run! Also available in 2-door sedan, 2-door business coupe, 2- and 4-door station wagons.

A FULL LINE OF FLEET PROVED COMPACT CARS FROM

RAMBLER

Rambler for 1961 offers three series of compact fleet cars —the world's widest choice of models—with a host of new man-saving, money-saving features including . . .

- New die-cast aluminum engine proved in two million rugged test miles for durability, performance and economy . . . standard on Classic Custom . . . optional extra on other Classic models.
- World's First! New Ceramic-Armored muffler or tail-pipe will be repaired or replaced without charge by a Rambler dealer, if it is defective in materials or workmanship, for life of car while original buyer owns it.
- New molded fiber-glass ceiling that cuts road noise 30% . . . increases headroom . . . featured on all Classic and Ambassador models.

Recent fleet surveys prove Rambler maintenance costs are lowest of all cars, Rambler resale value is tops. See how much more money you save with Rambler—America's Economy King!



Rambler Classic 4-door Super Station Wagon—Here's 80 cubic feet of cargo room for tools, samples, display material, light machinery. Choose from two 6's or high-performing V-8. Initial price may be actually less than competitive *sedans* you are now using. Choice of heavy duty equipment.

American Motors Fleet Department will coordinate purchases for fleet users throughout the country—with or without trade.



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No obligation! Demonstrators available for "on-the-job" test!

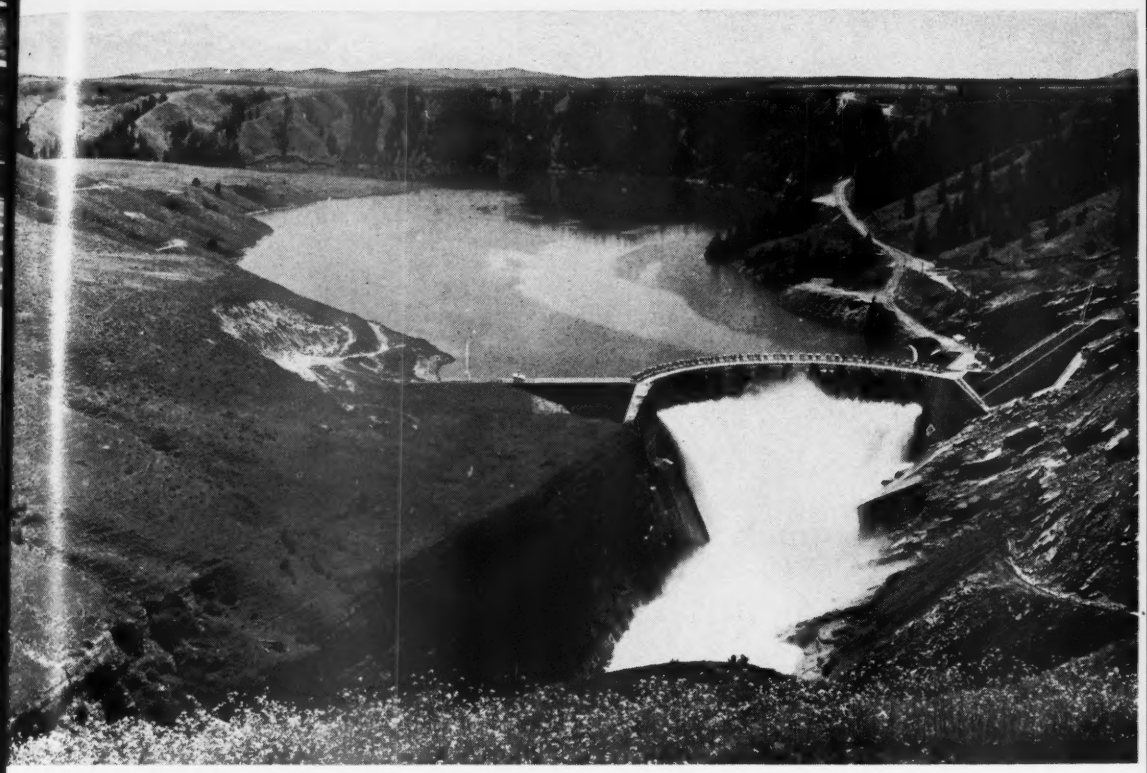
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AMERICAN MOTORS CORPORATION

14250 Plymouth Road, Detroit 32, Michigan



Montana Power Company's breath-taking Kerr Dam is located on the Flathead River in Western Montana. The company has filed for permission to build two more dams on this same river.

Montana: A Powerhouse

Not just for today or this year, but for 10, 20, even 30 years in the future—America's investor-owned electric utilities are planning, working, developing means to meet the nation's power needs.

The Montana Power Company is just such a utility. Situated in the great northwest with its towering mountains, cavernous canyons, bustling cities and roaring streams, this company is perhaps more fortunate than most. For Montana is truly a Treasure State of power—just waiting to be developed. And we're developing it.

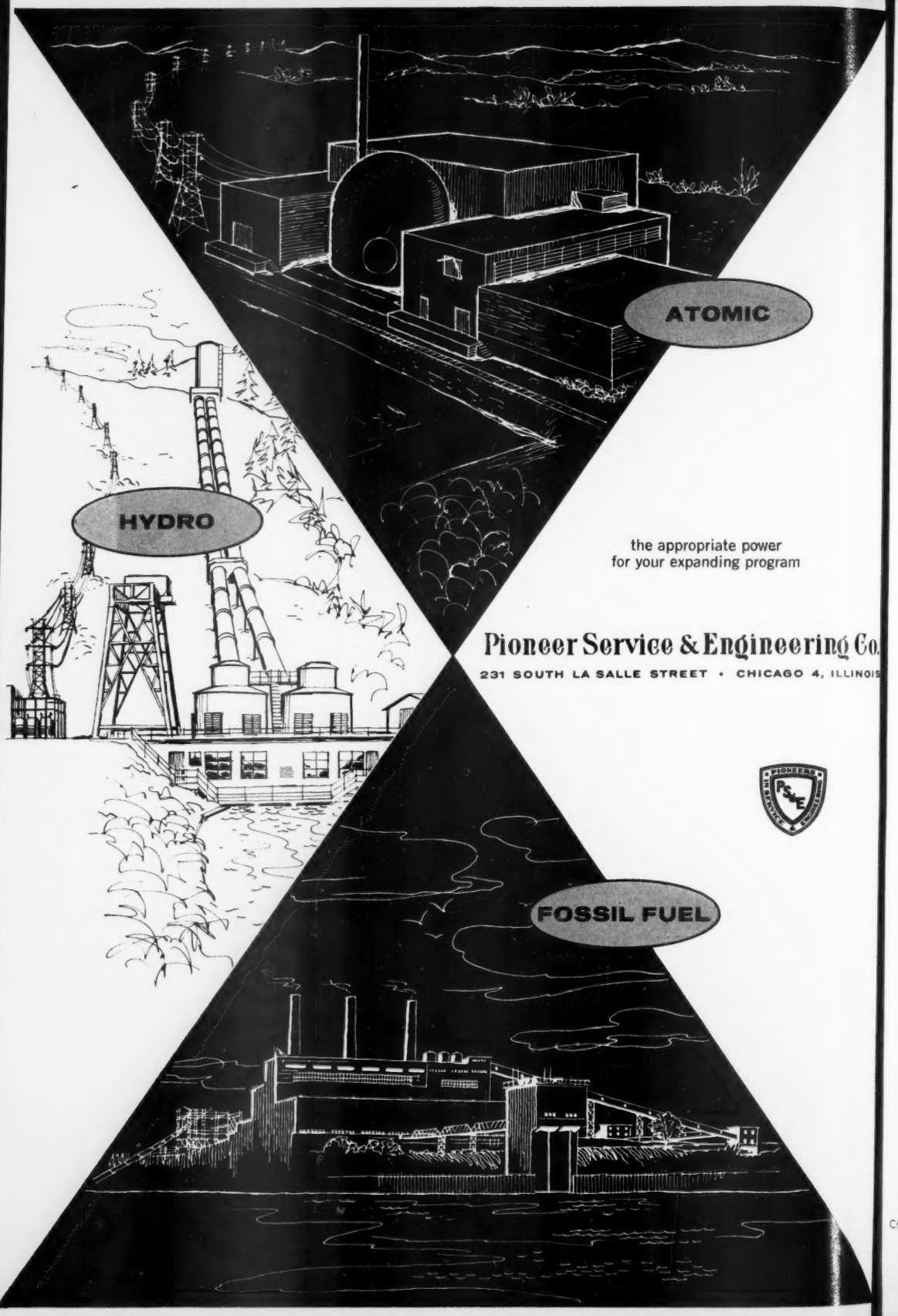
In March of this year, the company filed an application with the Federal Power Commission to build and operate two more power dams at Buffalo Rapids sites on the Flathead River. Their operation would be integrated with that of our existing Kerr Plant on the same river.

The total investment would be approximately $40-50 million and the additional power of 240,000 kilowatts (added to Kerr's own capacity of 180,000 kilowatts) will assure adequate service to the company's rapidly-growing and expanding market.

What is happening in Montana is typical of development by investor-owned electric utilities across the nation. These companies stand ready, willing, and able to meet the future power needs of all Americans. This is the foundation of America's world leadership in electric power supply.

The Montana Power Company

ONE OF AMERICA'S GREAT INVESTOR-OWNED ELECTRIC UTILITIES



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YOUR CALENDAR OF

MICRO POWER "no-break" POWER EVENTS FOR 1961

..by UNITED STATES MOTORS CORPORATION

1ST QUARTER

New BRUSHLESS GENERATORS

U. S. Motors 5 to 20 kw capacity Micro Power units will feature new "brushless" generators to eliminate brush and slip ring maintenance requirements. The no-break units will also operate at plus or minus 1 per cent voltage regulation to satisfy increasing sensitivity of critical operating equipment.

2ND QUARTER

New 5 KW DIESEL MICRO POWER

5 KW capacity "diesel" Micro Power units will be available to fulfill growing demand for a thoroughly dependable power supply unit of smaller capacity.

3RD QUARTER

New LARGER SELECTION

The most complete selection of Micro Power units ever offered will be ready by the second half of '61. Included will be 1½-3 kw gas, or gasoline units — 5, 10, and 15 kw gas, gasoline, or diesel units — 20, 30, 50, 75, 100, 150, 200, and 300 kw capacity diesel units.

4TH QUARTER

New COMBINATION AC/DC UNITS

For the first time, combination AC/DC Micro Power units will be offered in 3 kw and larger capacities with 48 or 129 volt DC current for energizing transistorized microwave communications equipment, and 120/240 volt AC current for handling non-critical power needs.

GROWING STEADILY TO MEET YOUR MOST CRITICAL POWER REQUIREMENTS

1952
First Micro Power Unit.

1953
Intensified design and testing program initiated.

1954
First shipments of 3 KW gas, gasoline Micro Power.

1955
First shipments of 5 KW gas, gasoline Micro Power.

1956
First shipments of 10 KW gas, gasoline Micro Power.

1957
First diesel Micro Power Unit.

1958
Further expansion of research-testing program. First 50 KW Micro Power Unit unveiled.

1959
First shipments of 10 KW diesel Micro Power. 100 KW unit designed.

1960
Over 2000 units in operation. Larger capacities on the way.

authorized sales and service representatives in

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More "energy pills" for growing California

nium pellets like this will be helping to feed power to Northern California in PG&E's second mic plant—a $20 million project near Eureka. next year it will be generating 60,000 kilowatts its initial core of "energy pills." With the sec- core, we expect to break the cost barrier to nomic nuclear electricity in this area. This is a part of a current investment in PG&E expansion amounting to $500 million in just 15 months . . . as we continue building ahead to serve California, a state-on-the-grow.

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for Greater Milwaukee

A Multi-million Dollar New Profile

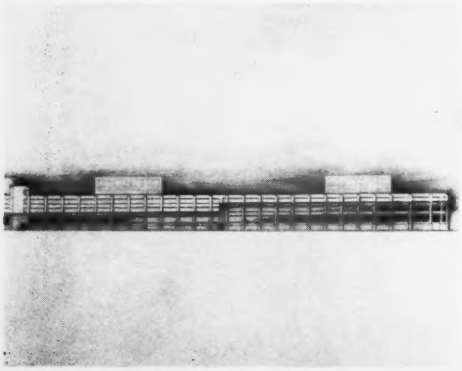
higher . . . wider . . . handsomer

There's a new spirit and a new urgency abroad in Milwaukee. Expansion projects shown here are only examples of dynamic progress, which, from 1958 to '59 alone, boosted greater Milwaukee construction activity 30.1%.

Milwaukee — all southeastern Wisconsin — is up-and-growing in industrial output, commercial development, and civic beauty. And keeping ahead — to meet the inevitably heavier power demands of this area — is the steady expansion of The Electric Company. For power and progress go hand-in-hand — where people produce more, build bigger, live better . . . electrically.



In the forefront of Milwaukee's resurgence are such leading banks as the First Wisconsin, Marshall & Ilsley and Marine National Exchange . . . currently modernizing their own physical properties. Above is an architect's concept of the Marine's $15,000,000 Plaza.



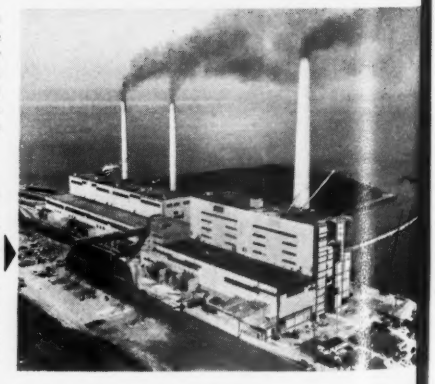
Artist's conception of American Motors' new Milwaukee body plant — one part of a $43,000,000 expansion program under way to meet increased demand for Rambler cars.



Allen-Bradley — world-famous producer of motor controls and switches — participates in Milwaukee's growth with this $15,000,000 south side construction project.



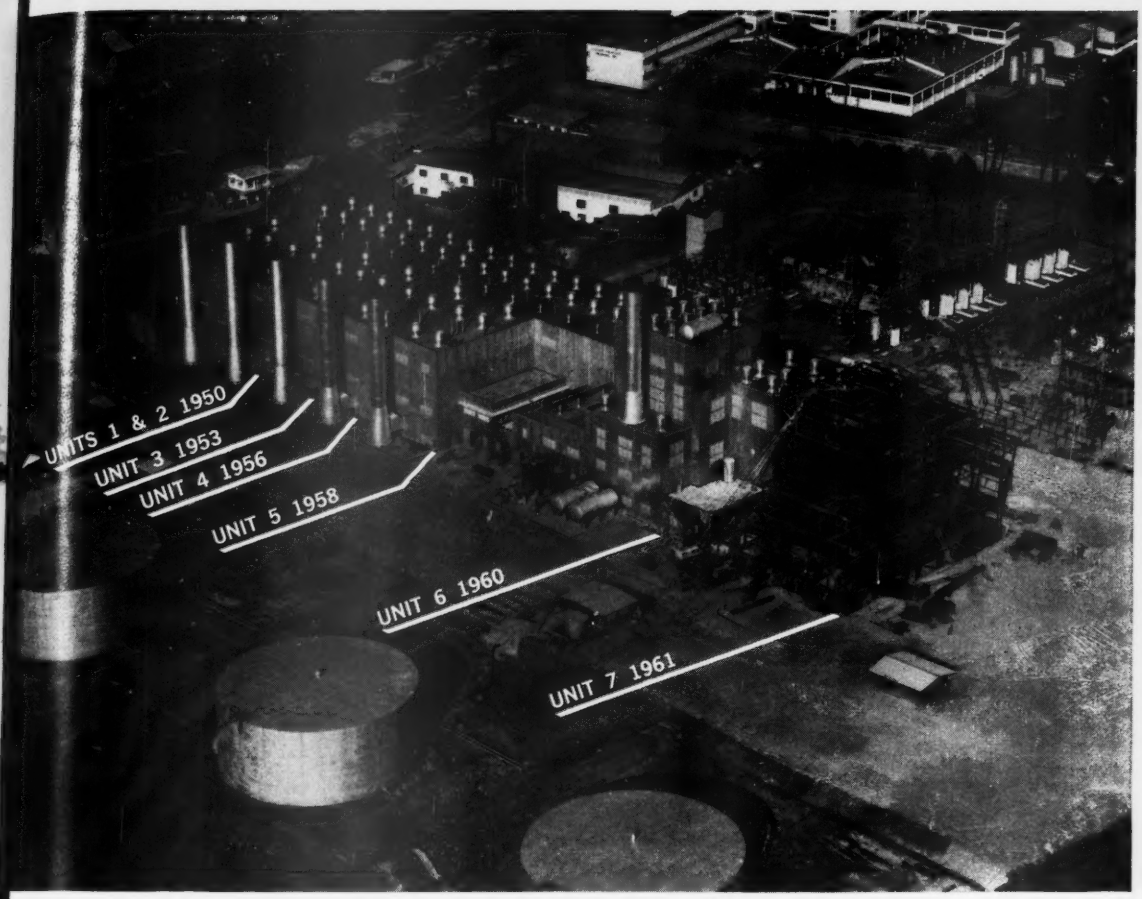
As more ocean freighters move through the new Seaway, the Port of Milwaukee is currently spending $13,000,000 on a harbor improvement program . . . well warranted by tonnage handled—up some 240% since the Seaway opened.



Because all types of expansion require power and more power, The Electric Company is busy building its sixth generating unit at Oak Creek. Estimated to cost $35,000,000, this unit, shown at the right, will increase the power plant's capacity to 1,050,000 kilowatts when completed late in 1961.

WISCONSIN ELECTRIC POWER COMPANY

Live Better . . . Electrically



... AND THEN THERE WERE 6 7 "

Manila Electric Company had a generating capacity of 45,500 kw in 1941. During World War II this system was completely destroyed and its capacity reduced to zero.

At the end of the war, the Philippine economy was badly shattered and electric power was needed desperately. The salvageable portions of the damaged plants were rehabilitated as quickly as possible. At the same time, recognizing the future need for a much greater capacity, the Manila Electric Company began planning a new generating plant. Designs were completed and the first two 25,000 kw units at the Rockwell Station were put into operation in 1950. Since that time four more units have been added bringing the total capacity of this station to 185,000 kw. — the sixth unit completed in 1960 is rated 60,000 kw. An identical unit is now scheduled to go into service in 1961.

Rockwell Station, an outstanding contribution to Philippine economic progress, is also a typical example of how one client has, over a period of years, utilized the engineering services of Gilbert Associates, Inc.

A SYMBOL OF GAI FOUNDED 1906 PROGRESS

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CB TAPES INCREASE YOUR CABLE'S LIFE AND EFFICIENCY

Maintain a low power factor by keeping the insulating oil clean, stable, and efficient. Because copper, oxygen and heat are present, the insulating oil in any paper insulated cable is subject to oxidation and gives off products that increase power factor. Anaconda greatly reduces this power factor increase by wrapping each conductor and the insulation in highly adsorbent carbon-black tapes. These patented tapes adsorb the oxidation products that the oil develops, keeps them outside the dielectric field. Result—the oil remains clean, pure and dielectrically stable far longer.

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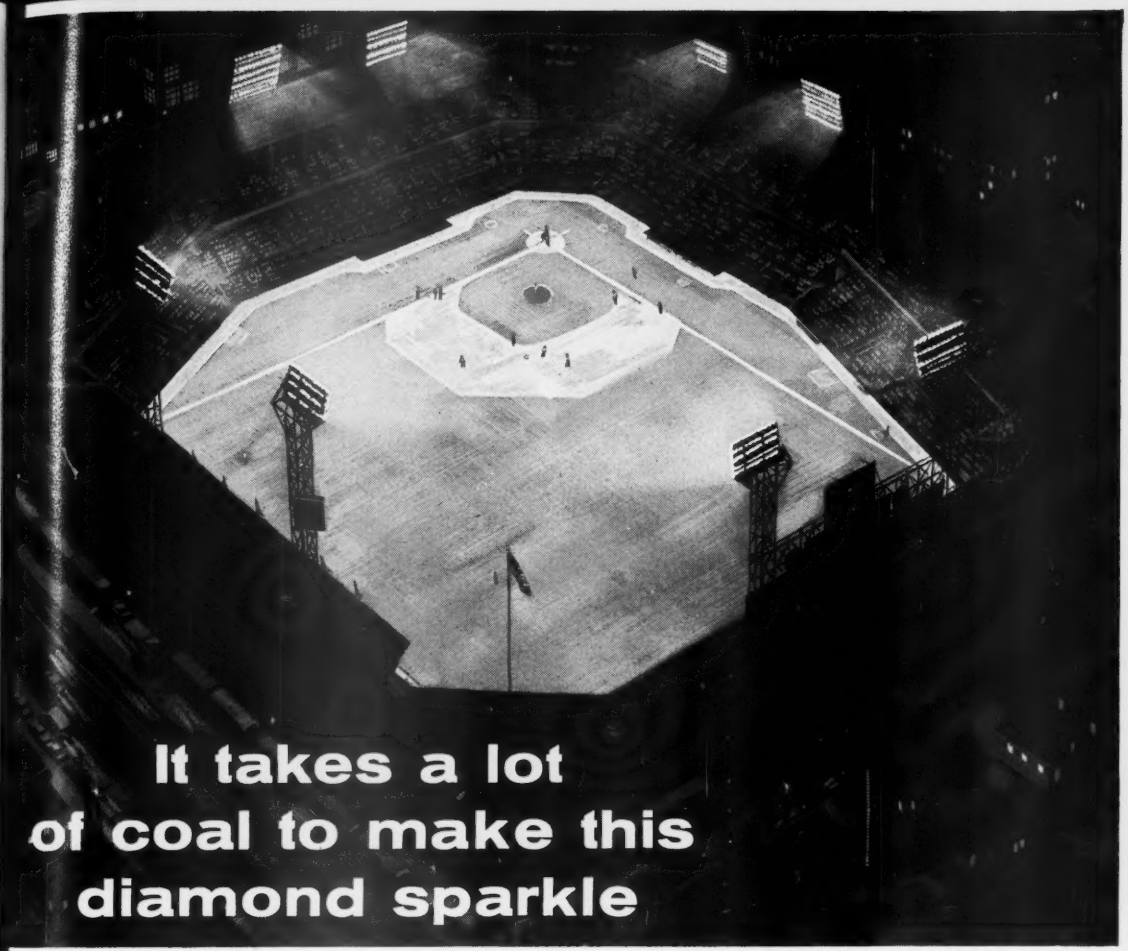
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The electricity that lights Busch Stadium is generated principally by coal, and Peabody is one of Union Electric's major suppliers. In our homes, offices, plants . . . even at the baseball games . . . coal serves us by generating dependable, economical power. In fact, one of the primary reasons for the continued low cost of electricity is the stabilization of coal prices—a direct result of big, fully mechanized mines such as those operated by Peabody. Not so strange then, that coal generates more electricity than all other fuels and water power combined.

Peabody Coal Company . . . with over two billion tons of proven reserves . . . supplies coal to many of the nation's leading Electric Utilities that furnish you this power . . . at a price you can afford to pay. The next time you watch a night baseball game . . . at the ball park or on your television set . . . think of *coal* and the great Electric Utilities that help make it possible.

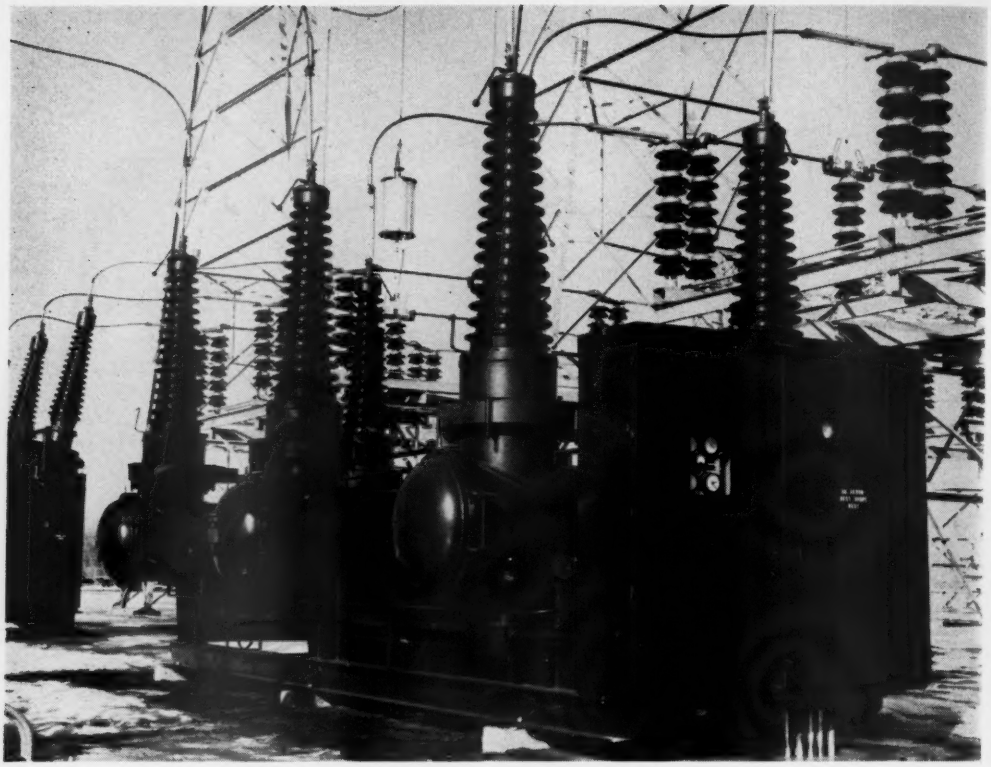
If you are seeking a new plant site, Peabody can be of assistance to you. Contact us for information on strategic industrial locations. No obligation, of course! Call today or write Department **U.**

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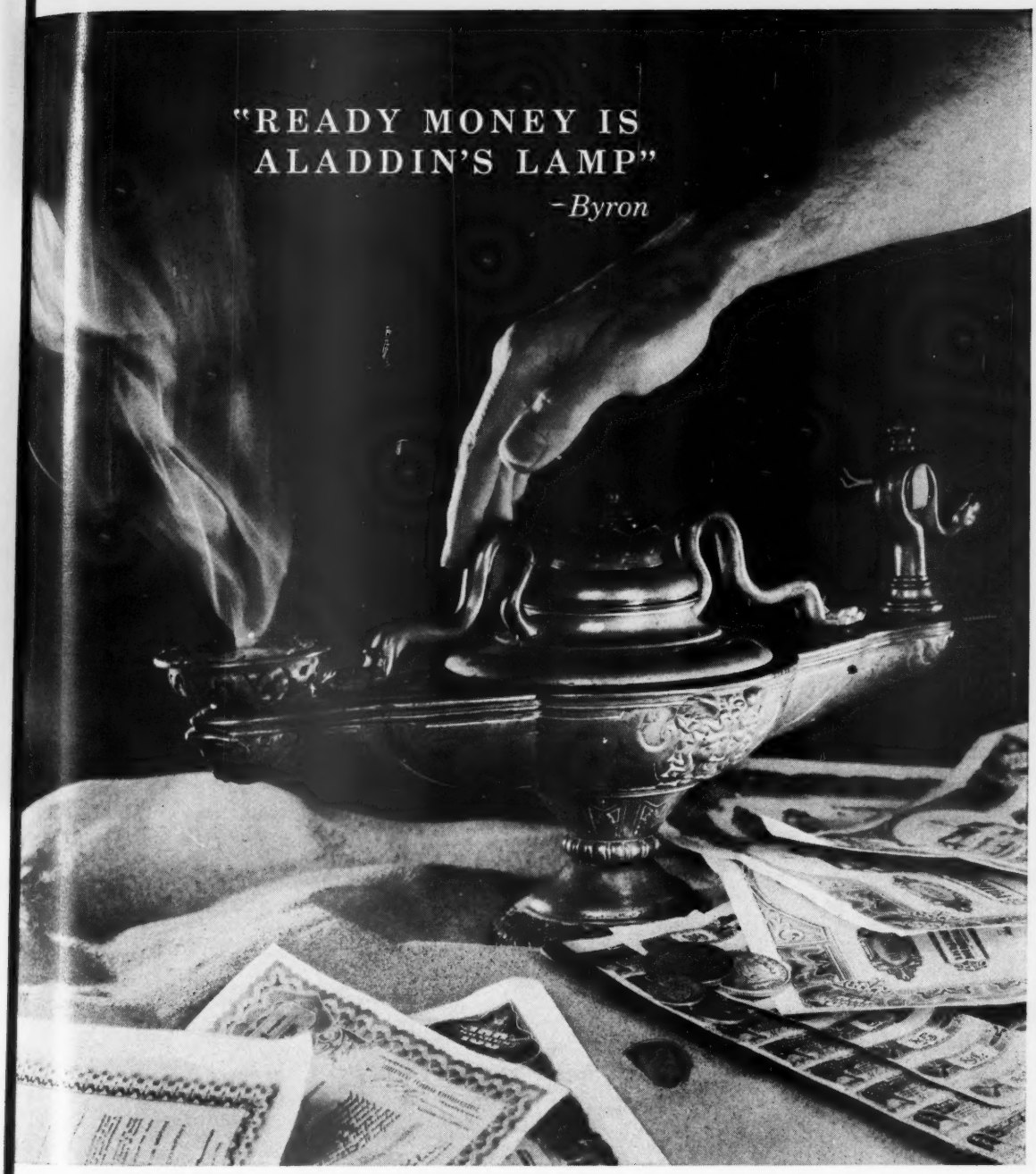
First of this Size

This unique sulfur-hexafluoride-gas-filled circuit breaker — in service on the 220,000-volt transmission line out of the Company's new Brunner Island steam-electric station—is the first of its high voltage in commercial use. This big unit is the result of cooperative effort between the Company and the manufacturer in searching for more efficient ways of safely switching power at high voltages.

The new circuit breaker is smaller than conventional units of the same capacity, so less physical space is needed. It requires less maintenance, too. And, because the sulfur-hexafluoride gas does not burn, there are added safety benefits.

In many ways, in every area of its operations, PP&L is constantly seeking out new methods and new equipment that mean more efficient and economical operation. Only in this way can the Company realize the PROGRESS necessary to effectively meet increasing customers' needs, attract and retain competent people and stimulate and maintain investor confidence.





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For companies who need the right kind of "ready money", the experience of Salomon Brothers & Hutzler as a primary market for institutional securities and the firm's daily familiarity with the preferences of the country's largest investors place us in a strategic position to judge the price and acceptability of corporate issues. Our partner, John Stevenson, will be pleased to answer your inquiries.



MEASURING

the Potential of Power

The most reliable measure of potential is probably past performance. An optimistic outlook is indicated by LILCO's progress during the past ten years.

For example:

- Population of the service area more than doubled, and now numbers 2,100,000.
- Residential electric customers increased from 291,495 to 531,436. Commercial and industrial electric customers increased from 34,325 to 54,413.
- Residential gas customers increased from 214,611 to 310,290. Commercial and industrial gas customers increased from 11,414 to 21,853.
- Electric capability increased from 356,000 net Kw to 1,256,500 net Kw. Gas capability increased from 39,900 mcf per day to 172,700 mcf per day.

Our service area enjoys an excellent economic climate and a steadily growing population. There are superior highways and transportation, skilled and unskilled labor is readily available, and there are ample sites for the future expansion of the area's diversified commerce and light industry. The local government is enlightened and forward-looking.

Like to know more about LILCO's part in the community? Write Dept. P. R., at the address below, for a free copy of "The Private Life of a Public Utility."

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Power in Illinois...

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► THE P.U.R. GUIDE program is a systematically and consecutively arranged series of weekly lessons, in pamphlet form, offering a simplified, progressive, step-by-step story about the nature of the utility business, its important place in the American economy, the present conditions under which it is conducted, its day-to-day objectives and responsibilities, the existing problems with which it is confronted and other current subjects arising in connection with organization, financing, management, operation and regulation. This program adds guidance to experience in the development of the company "management team."



Features of THE P.U.R. GUIDE

- ► 50 issues of 8 pages (one each week)
- ► Certificate of satisfactory completion
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- ► Leader's Manual for group discussion
- ► Occasional reprints from Public Utilities Fortnightly
- ► Enrollments on company order only

Comments about THE P.U.R. GUIDE

Our Company is currently involved in several training programs, and I feel qualified to evaluate the information that you are sending out. I think this type of **material is, without a doubt, the very best** that could be obtained for key utility employees.

Director of Personnel, Electric Company

We feel that even those who have been in the utility industry for many years **can learn much by just reading the material.**

District Manager, Electric Company

We all feet that this "information program for utility employees" is a program that is **needed in the public utility industry.**

Vice President, Gas Company

I am sure that the total series of 50 will prove of **inestimable value to the utility industry.**

Vice President and General Manager, Telephone Company

THE P.U.R. GUIDE program is the **best basic public utility information series** I have even encountered.

Vice President, Gas Company

Two things have particularly impressed me about THE P.U.R. GUIDE. First, is the **complete manner** in which your editors treat the various topics; second the **simplicity in writing.**

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There is a **definite need** for such a type program in our industry.

Training Assistant, Electric & Gas Company

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And commercial banks contribute.

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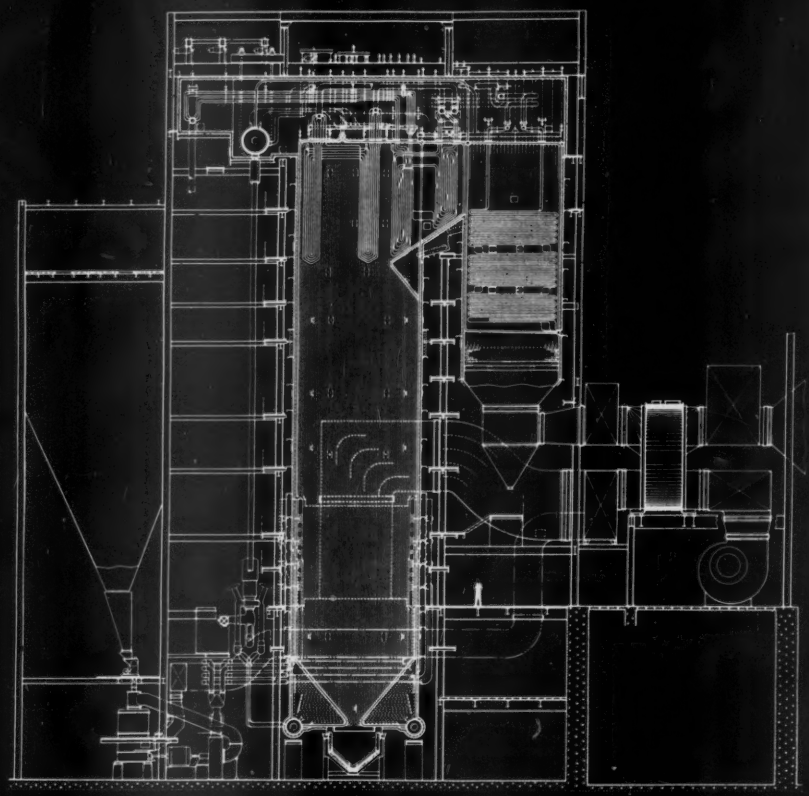
On the consumer side, bank loans frequently help wire the home and provide ready money to buy electrical appliances in neighborhood stores.

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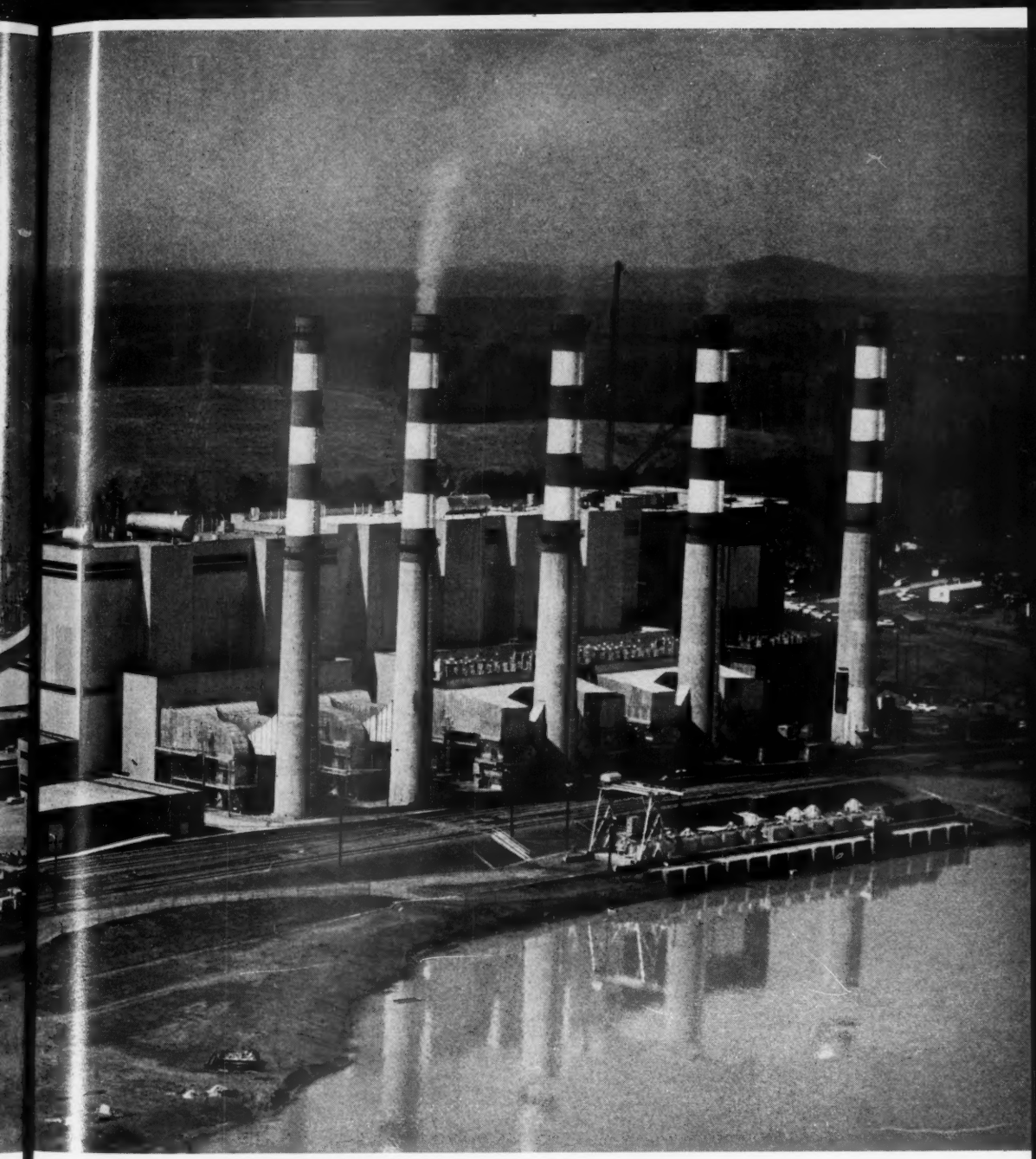


Sectional side elevation of unit No. 4 at Allen. This twin furnace unit, fired by pulverized coal, serves a 270,000 kw turbine generator and produces steam at 2450 psi and 1050F/1000F.

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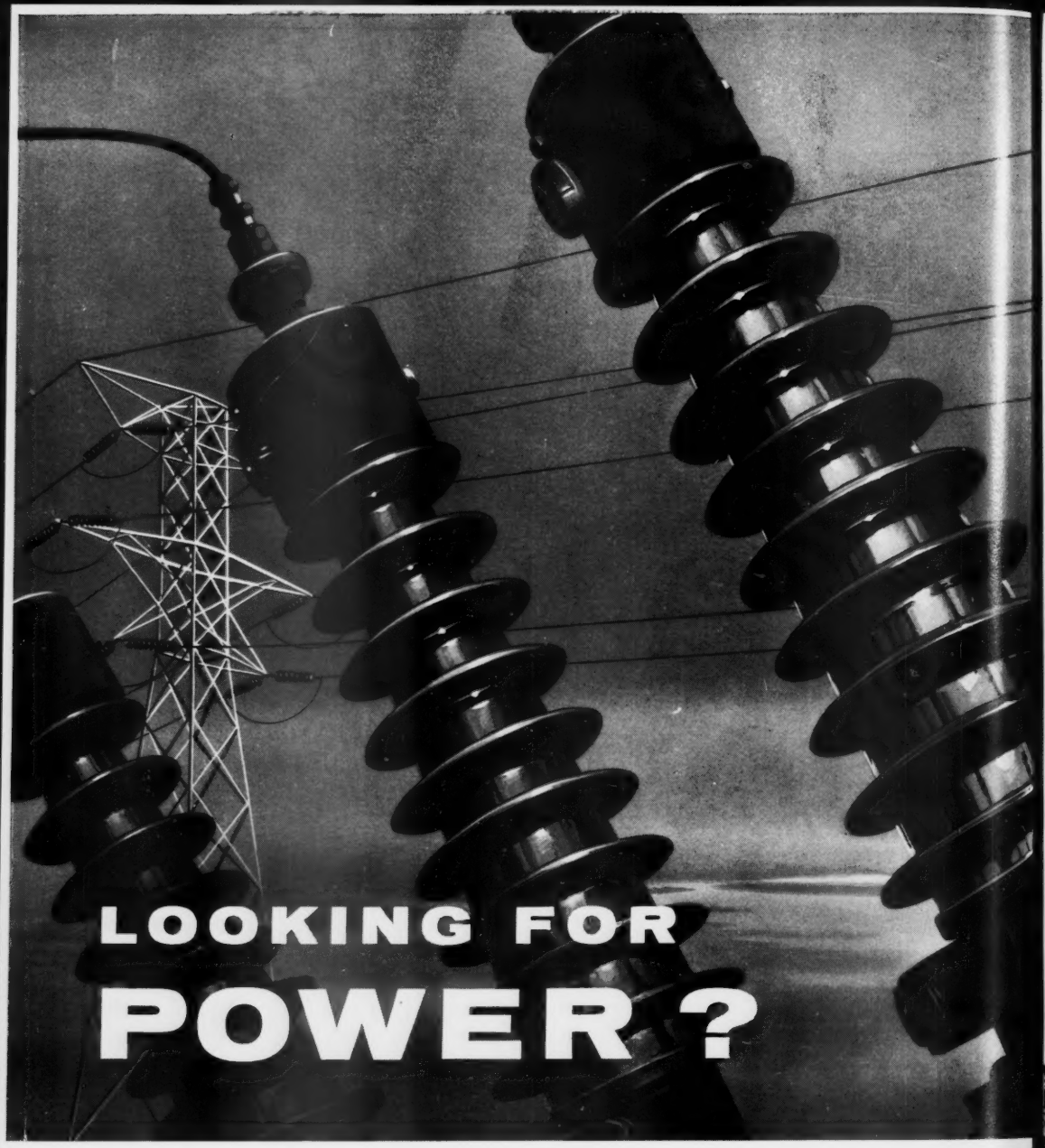
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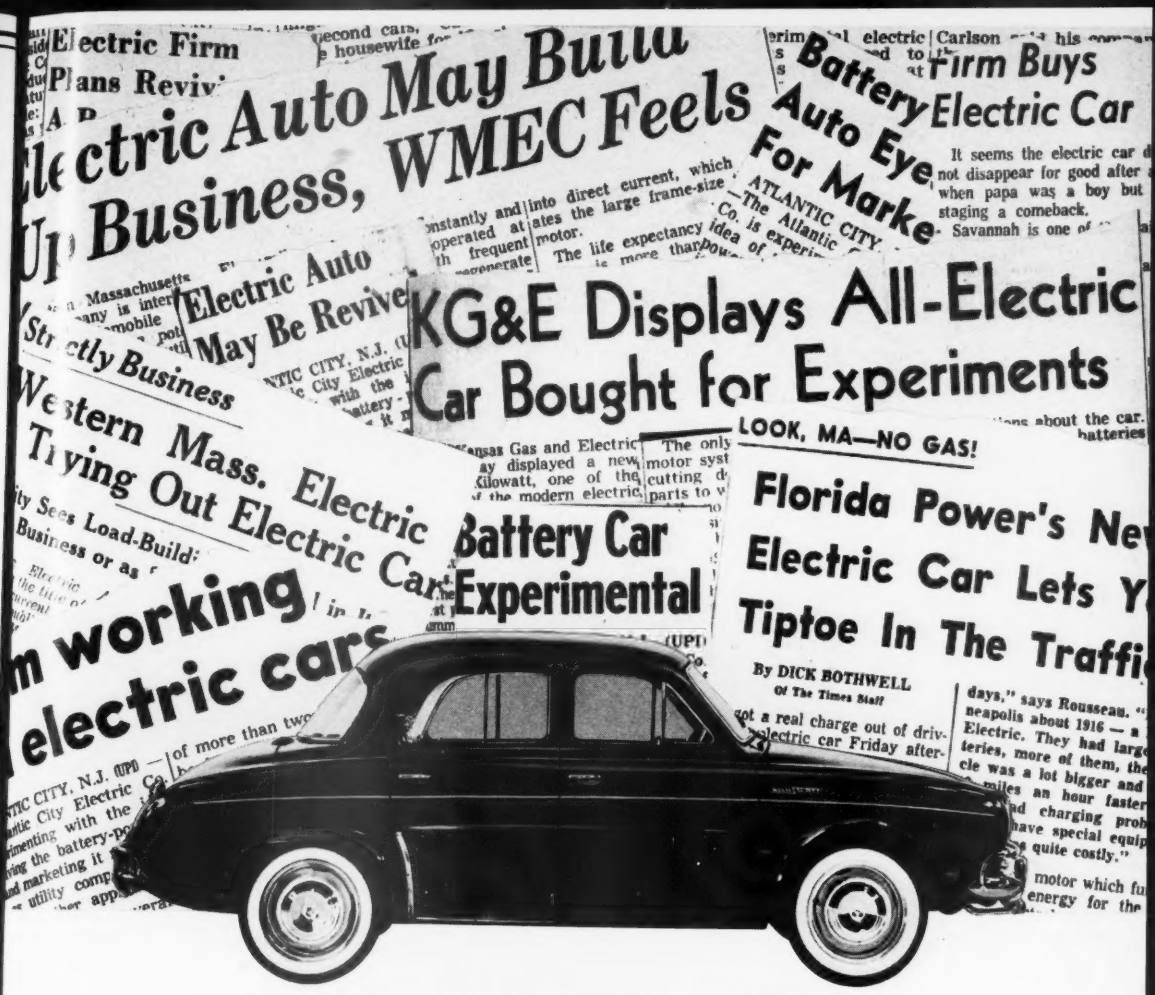
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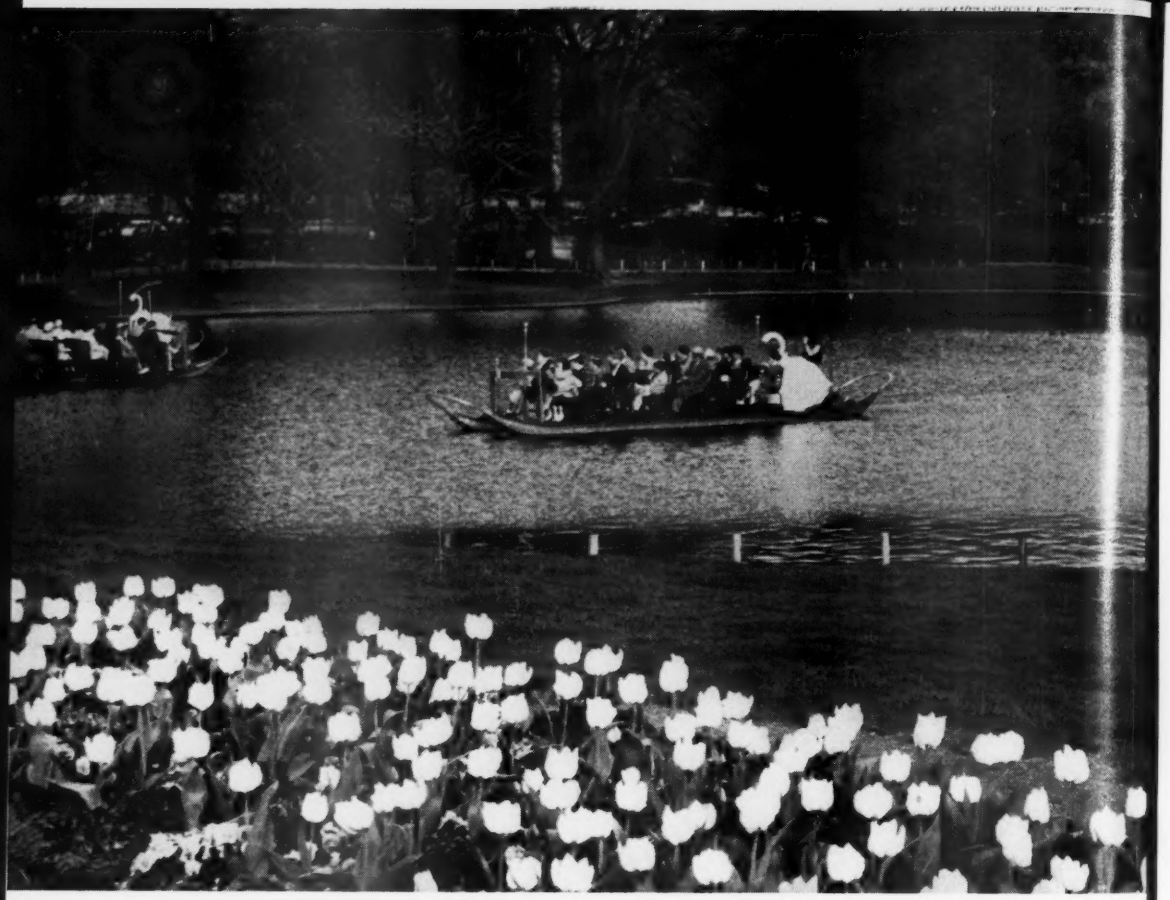
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Don't overlook the publicity and public relations value of the Kilowatt, either. Think of the impact as sales people, home service personnel, and meter readers call on electric power customers in an electric powered automobile!

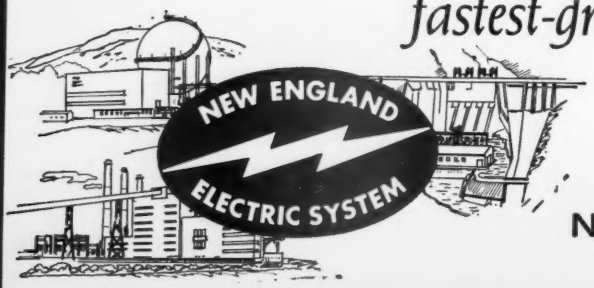
These are only a sampling of the reasons the Kilowatt created so much excitement on the Boardwalk at Atlantic City when it was introduced at the annual convention for the Edison Electric Institute in 1960. Power and utilities companies, business and industry have already put this electric career car to work for them. And we would welcome the opportunity to show you this car that's causing all the talk.

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Utilities Events Calendar

CHECK THESE DATES:

June 8-9—Illuminating Engineering Society, Northeastern Region, will hold conference, Asbury Park, N. J.

June 8-9—Pennsylvania Electric Association, Stores and Purchasing committees, will hold joint meeting, Connellsville, Pa.

June 11-13—Wisconsin Municipal Utilities Association will hold annual conference, Lake Delton, Wis.

June 11-13—Wisconsin Utilities Association will hold accounting conference, Lake Delton, Wis.

June 11-15—Air Pollution Control Association will hold annual meeting, New York, N. Y.

June 11-15—American Society of Mechanical Engineers will hold semiannual meeting, Los Angeles, Cal.

June 11-23—Advertising Federation of America will hold annual advanced management seminar in advertising and marketing, Cape Cod, Mass.

June 12—Instrument Society of America will hold air pollution instrumentation symposium, New York, N. Y.

June 12-14—Electric Council of New England will hold commercial industrial area development workshop, Manchester, Vt.

June 12-15—Institute of Boiler and Radiator Manufacturers will hold annual meeting, Absecon, N. J.

June 12-15—National District Heating Association will hold annual meeting, Portsmouth, N. H.

June 13-14—National Safety Council, Public Utilities Section, will hold executive committee meeting, Montreal, Quebec, Canada.

June 14-15—Institute of Radio Engineers will hold conference, Philadelphia, Pa.

June 15-16—Washington-Oregon Telephone Association will hold joint convention, Victoria, British Columbia, Canada.

June 18-23—American Institute of Electrical Engineers will hold summer general meeting, Ithaca, N. Y.

June 19-20—Illuminating Engineering Society, Great Lakes Region, will hold conference, Cincinnati, Ohio.

June 19-21—American Marketing Association will hold national conference, Los Angeles, Cal.

June 19-21—Midwest Power Accounting Association will hold meeting, La Crosse, Wis.

June 19-21—New York Telephone Association will hold annual convention, Schroon Lake, N. Y.

June 20-22—American Water Works Association, Pennsylvania Section, will hold annual meeting, Wernersville, Pa.

June 20-24—Canadian Gas Association will hold annual meeting, Banff Springs, Alberta, Canada.

June 21-23—National Committee on Utility Radios will hold meeting, Columbus, Ohio.

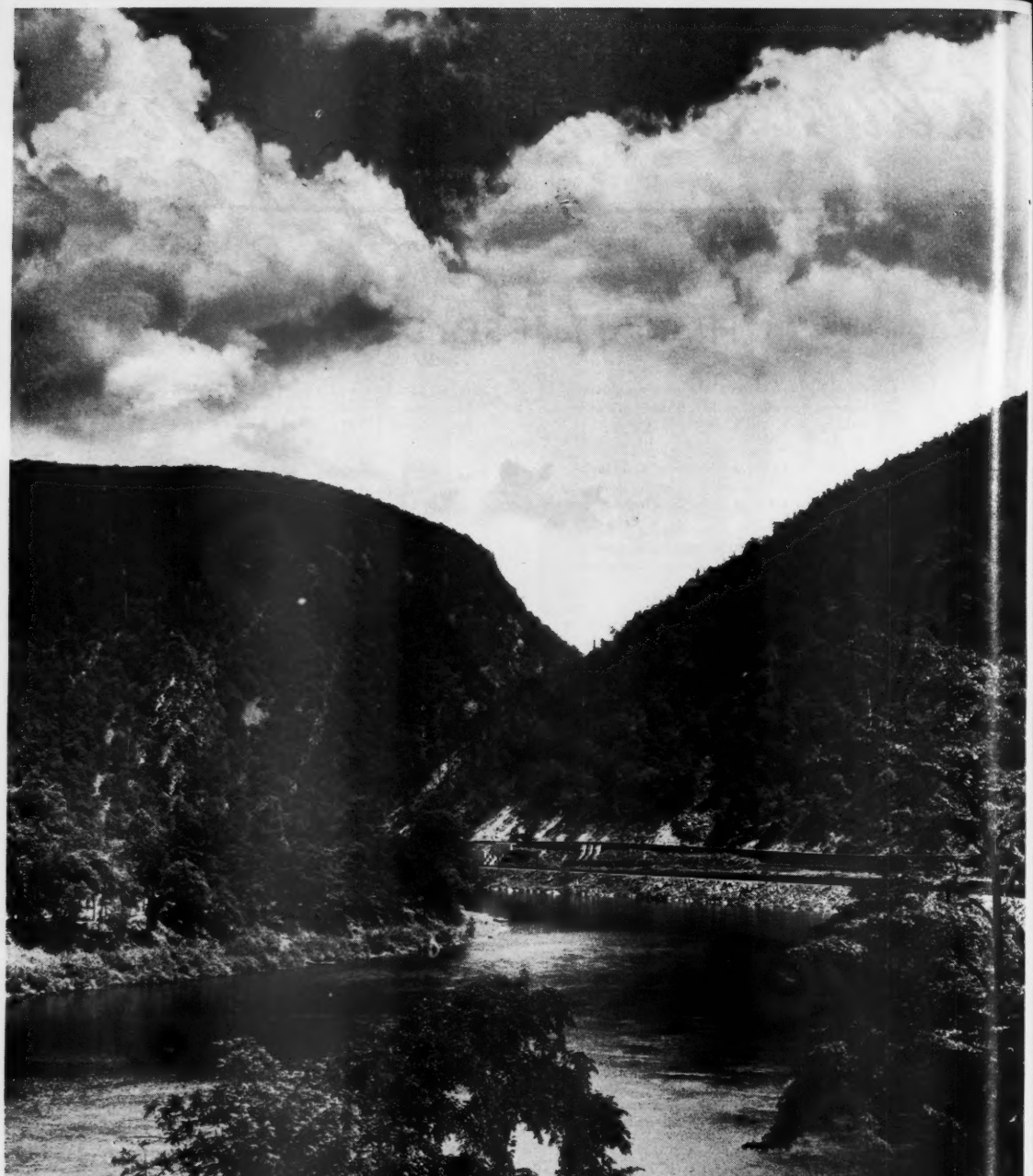
June 22-23—Edison Electric Institute, Sales Division, Residential Electric Heating and Air Conditioning Committee, will hold meeting, Williamsburg, Va.

June 25-28—North Central Electric Association will hold annual executive conference, Lake Okoboji, Iowa.

June 25-30—American Society for Testing Materials will hold annual meeting, Atlantic City, N. J.

June 26-28—American Society of Heating, Refrigerating, and Air Conditioning Engineers will hold annual meeting, Denver, Colo.

June 25-28—American Society of Agricultural Engineers will hold annual meeting, Ames, Iowa.



Courtesy, The Stroudsburg Daily Record

The Delaware Water Gap

One of the truly scenic areas along the course of the Delaware river. This particular area will not be altered should the proposed Delaware River Basin Compact be approved. Representative Francis E. Walter's discussion of this five-party compact begins on page 805 of this issue.

Public Utilities
FORTNIGHTLY

VOLUME 67 JUNE 8, 1961 NUMBER 12

Planning for Tomorrow's Power

As impressive as it appears in any statistical record, growth is not the sole feature of the electric utility industry in the United States. Stability, ingenuity, and resourcefulness have also been clear characteristics in the industry's march of progress through the years. In planning for tomorrow's power, the electric companies will also place special emphasis on research and co-operation. They must also find a way of making their problems meaningful to their customers, employees, and stockholders.

By SHERMAN R. KNAPP*
President, Edison Electric Institute

THE continued expansion of the nation's investor-owned electric utility companies over the past eighty years —through booms and recessions, through war and through peace — has clearly marked them as one of the great growth industries of America. The companies have built an enviable record. But they did not do so by chance. After all, the electric companies did not just grow; they were built.

The character of the electric industry as we know it is an outgrowth of the planning and effort of people, largely in investor-owned electric companies, who have devoted themselves to bringing the marvels of electricity to more and more people in more and more places. Over the years, the electric industry has been consciously shaped by people working to serve the best interests of customers, employees, and investors.

The effectiveness of their efforts can be seen in the position of world lead-

*Also president of The Connecticut Light and Power Company. For additional personal note, see "Pages with the Editors."

ership which the electric industry of this country holds today. With only about 6 per cent of the world's population, the United States produces over one-third of the world's electricity. We produce more power than the next seven countries combined. Last year, we produced more than three times as much power as did the Soviet Union, the second-ranking nation.

The electric industry in this country not only maintains an overwhelming lead in world power production, it has built a transmission and distribution system that is equally unparalleled. For instance, the land area of the United States is about one-third that of the Soviet Union, yet we have almost five times as many miles of transmission lines. Through these great transmission systems, electric service has been made available to virtually every family and farm, shop and factory in the country. But we must remember that the electric industry in the United States was not built for size; it was built to meet the needs of the American people. It did not grow as part of an international competition; it grew step by step with the country it serves. It continues to be tailored to fit the needs of the nation.

Industrial Stability

GROWTH is not the sole characteristic of the electric industry in this country. There is another quality that is equally important: stability. Through the seemingly infinite gyrations of the business cycle, the electric industry of this country maintains its own equilibrium and, at the same time, brings a stabilizing influence to the economy as a whole.

Look, for example, at the first months of 1961. Despite a business recession, the electric industry has continued to expand. In January, the steel industry, one of our important customers, was operating at only about half of capacity. Business in general was poor. Yet, kilowatt-hour sales in January were 3.2 per cent higher than they had been in January, 1960, when the steel mills were at nearly full capacity and business was booming.

LAST year the investor-owned electric companies produced more kilowatt-hours than ever before in history. This year, in spite of the recession, and assuming normal weather conditions, there seems every reason to believe that new records will be set. According to the most recent estimates of the Edison Electric Institute's Power Survey Committee, the power output of the total electric utility industry in the contiguous United States (excluding Alaska and Hawaii) is expected to reach 818.7 billion kilowatt-hours by the end of the year. This will be an increase of 7 per cent over 1960 output.

Of course, the electric industry is not simply a producer of power; it is a consumer, as well. Electric companies buy coal, oil, and gas in large quantities. They buy materials and equipment from business concerns in every state in the Union, from hard hats to trucks and computers. As they grow, their need for the products of other industries is growing, too. As they increase their purchases, they help maintain growth in other areas of the economy.

A clear example of the importance of the rôle of the electric utility industry as a consumer can be seen in the records of the electrical equipment manufacturers. They show that, in spite of the recession, new orders for electric generating equip-

ment were greater during the first quarter of 1961 than during any first quarter since 1956.

A Record for Growth

OVER the last seven years, new investment in power facilities by the electric utility companies has averaged about $3.2 billion a year. This is, on the average, about 10 per cent of all new construction of all business in the United States. It is like building one and one-half new TVA's every year. According to present estimates, construction of new power facilities by the companies will call for an additional investment of $52 billion during the period 1960-70 and of $91 billion more from 1970-80. Investment of this kind will play an important part in maintaining the overall growth of the American economy.

Historically, the electric utility industry in the United States has doubled its sales about every ten years. It is ironic that, because of the very consistency of this record, a number of people seem to have concluded that growth and stability are as natural to the electric industry as sunny skies to summer. That is not necessarily true. The future of the industry is bright, but there is always the chance of clouds on the horizon.

The size and rapid growth of the electric industry today tend to hide some of the basic elements in electric company operation. In the early days of the electric industry, the position of the central station operator was very clear. He could see his competition quite vividly. He knew that any of his customers could choose between buying electric energy from the central station or producing it from their own generating units. The central station operator knew that if he did not provide electricity more economically than an isolated unit, he could not remain in business. Of course, the same kind of competition continues to exist today. If it does not seem as keen as it once did, the reason lies in the effectiveness with which it has been met.

THE founders of the electric utility business in this country began as purveyors of light. They could have remained that and nothing more. Instead, they quickly realized that if central stations were to survive, electricity would have to be used for other purposes. By concentrating on light alone, plants were able to operate only a few hours a day. To provide economical service, they needed to operate around the clock. As a result, the early central station men began to explore new uses for their product. The electric motor, the rapid growth in popularity of street railways, and other developments made it possible for them to change the character of their business. They were no longer simply electric light companies; they became electric light and power companies.



The central station operators had started out to diversify their market. In doing so, they set one of the lasting patterns of electric company operation in this country. Because of the diversity of customer categories they developed, and the diversity of demand within each of these customer categories—which the electric companies continue to maintain and seek to increase—competition from isolated units is virtually nonexistent. Only in some special industrial situations do we now find electricity generated by the consumers themselves. Year by year, the percentage of our nation's total power supply produced by these users has diminished.

The Central Station Is Here to Stay

RECENTLY, however, we have been hearing discussions of the possibility that, at some time in the future, a method of producing electricity, such as the fuel cell, may be developed that will make isolated generating units practical for residential use. People have pictured a little black box tucked away in a hall closet ticking out all the electricity needed in our homes. It is an interesting idea; but it ignores the factor of diversity.

Last year, the average annual residential use of electricity in this country was 3,790 kilowatt-hours. By 1970, according to our latest estimates, residential use will have nearly doubled, reaching about 7,500 kilowatt-hours a year. The black box that produces electricity in these quantities will have to be sizable.

Look at it this way: An isolated generating unit must provide enough capacity so that, in case of need, all the appliances and all the lights in the home can be operated at once. It must do this silently, safely, and reliably. Above all, it must operate more economically than a central station which is part of a system serving thousands of customers and able to take full advantage of the diversity of demand that this implies.

IT seems unlikely that these conditions can be met. For instance, as a result of diversity a central station today needs to provide only about six-tenths of a kilowatt of capacity for each electric range on its system. Yet, each range, individually, may have a demand of ten kilowatts. The isolated generating unit would have to provide the full ten kilowatts. The economic advantage of the central station is obvious.

Just as the character of the electric utility industry today is an outgrowth of the plans and efforts of the past, so the electric utility industry of the future will be an outgrowth of the plans being made and the work being done today. The fact that the men and women of the investor-owned electric companies fully recognize this is exemplified in every area of company operation.

During the past year, recognition of the particular importance of research in building the electric industry's future has shown itself in a number of ways. In most of American industry, research is done almost entirely on a company basis. Sometimes groups of companies work together to find answers to specific, mutual problems; but very rarely does an entire industry co-operate in research activity. In the case of the electric utility business, industry-wide research has been going on for some years. While it does not account



for more than a fraction of the total research effort at this time, it is an important fraction—and a growing one. The subjects being studied are varied, ranging from work on galloping conductors to tree control to electrical heart massage. To follow research at the industry level, a new research division of the Edison Electric Institute has been organized during the past year. This organization, under the leadership of Willis Gale, chairman, Commonwealth Edison Company, will give close attention to new developments in generation. transmission, distribution, and utilization.

DURING the past twelve months the electric companies' program for the development of nuclear power has made substantial gains. Including the two plants which began operation during 1960, there are now five electric company nuclear power plants in operation in the United States. Seven more company-sponsored projects are under construction, two are under design, one is under contract negotiations, and two are in the planning stage. In addition, electric companies are taking part in eight other nuclear research, design, and study projects. In all, 129 electric companies are participating in 25 separate nuclear power projects, involving utility investment of about $700 million.

Certainly one of the important trends in the electric industry today, and one that will have increasing effect on the utility industry of the future, is the growth of interconnection and pooling. Of course, the idea of pooling and of transmission between areas is not new. It has been going on for a long time. As an example of the pattern that has developed in interconnection, let me describe the case of my own company, The Connecticut Light and Power Company. Our situation, I believe, is quite similar to that of other companies in other parts of the country.

Growth by Merger

THE CONNECTICUT LIGHT AND POWER COMPANY, which covers about two-thirds of the area of the state of Connecticut, is the result of the getting together, in one way or another, of some 65 separate entities. The process began back at the turn of the century, when each community had its own power plant sup-

plying only its immediate area. As the demand for electricity was developed, and as the techniques of producing and supplying power were improved, it became necessary for companies to join together. Companies bought their next-door neighbors. Unifications took place. Gradually, service areas were expanded until, eventually, the present company area was defined. But the demand for electricity did not stop growing.

The time came, some years ago, when it became necessary to jump over corporate limits—to pool the resources of several companies.

The process of pooling is going on in all parts of the country. High-voltage transmission lines are being used to carry power, in bulk, from one area to another. Because of pooling, our most economical generating units can be utilized to better advantage, and large, more economical units can be justified.

To my mind, the chief problem facing the investor-owned electric companies of this country today is that of tax inequality. During the past year, in an attempt to do something about the problem, I drafted a letter which I thought might be helpful in informing stockholders of the problem. It seemed to me that a positive indication of interest by the men and women who own the nation's electric companies might have some impact in an attempt to correct the present situation. In the letter, I wrote:

> One of the ways the new administration in Washington expects to raise the money to pay for expansion of the defense program, federal aid to education, health plans for the elderly, and so forth, is by closing tax loopholes. One such loophole that concerns us in the electric utility business is that where electric power is furnished by a municipal, state, or federal government, or by a co-operative, the user makes little or no contribution through his bill for electricity to the general support of government.
>
> This loophole, in total, amounts to more than one-half billion dollars per year.
>
> The shareholder-owned electric companies of the United States supply power to about 80 per cent of the electric utility customers in the country and, incidentally, serve as tax collectors for local, state, and federal governments. The total amount of money collected from the customers of these companies for the three levels of government would be approximately $2.35 billion for 1960. This amounts to 24 per cent of their total bill for electricity, which compares with about 3.5 per cent paid by the customers of government and co-operative power operations.
>
> The electric bill is a convenient and simple means of collecting taxes for the general support of government; so we contend that all users of electricity should make the same proportional contribution. There appears to be no justification for consumers of electricity in Los Angeles, or Jacksonville, Florida, or Knoxville, Tennessee, or any other location that is supplied electricity by a government agency or by a co-operative to be excused from bearing the same burden of tax support that is borne by 80 per cent of the consumers in this country who are served by shareholder-owned electric companies.

We feel very strongly that this tax discrimination against the shareholder-owned companies is inequitable, as well as being economically unsound. Its elimination would provide additional tax income of over a half-billion dollars annually, which undoubtedly would be welcomed by the nation's tax collectors.

I intend to talk to our representatives in Washington about this matter and it would be helpful if I could tell them that a substantial number of our shareholders agree with the views I have outlined. I shall, therefore, appreciate your indicating on the enclosed self-addressed post card, whether or not you agree.

It is only by this kind of co-operative action that progress can be achieved in what we believe to be the right direction.

To me, the meaning of this letter was perfectly clear, However, after a series of interviews with actual stockholders, I realized that it may not be as clear to others. As a result, the letter has not been mailed as yet.

Tax inequality in the electric industry will only be solved when we in the investor-owned companies find a way to make the problem meaningful to our customers, our employees, and our stockholders. The solution lies in the field of communications. Once we find the proper way of telling our story, the people of America will find a way to restore equity in this important area of taxation.

Of course, there will be no single magic phrase that will suddenly bring the answer. Different groups of people will need to hear the facts in different ways. The language and approach suitable to stockholders may not be suitable to customers.

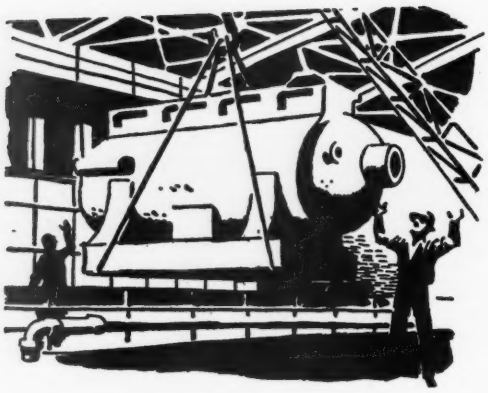
It will not be easy to match the message to the audience, but it can be done. In fact, it must be done, for the problem of tax inequality must be solved if the electric companies are to successfully combat the continued efforts of government power proponents to nationalize our industry.

Who Makes Up for Tax Exemptions?

"HOW long will it be before the people see what they lose every time the federal government spends tax money to build a tax-exempt federal power project, which prevents the building of a tax-paying investor-owned electric plant? The principal argument for the socialized power plants is they pay no taxes and get other privileges from the government denied all publicly regulated utility companies, which enable them to cut rates. But beyond price cutting, government in business destroys private enterprise and thereby limits individual opportunity. . . . If it is a good thing to allow socialized power plants to be tax-exempt in order to cut electric rates for privileged customers, why not extend tax exemption to investor-owned power plants and let them cut rates even below the public plants?

"Of course, the tax loss would be assessed against all remaining taxpayers."

—EDITORIAL STATEMENT,
Industrial News Review.



Power for National Security And Growth

The trend to what might be called "electric living" is strikingly reflected in our daily routines. This is truly one field in which we have outpaced the Russians; but we cannot afford to relax in the broad cold war competition on all fronts. How can the federal government best promote full utilization of our natural resources with respect to electric power production; how can the electric utility industry best co-operate in reaching this objective?

By The Honorable STEWART L. UDALL*
Secretary of the Interior

INCREASING tension in the world's trouble spots underscores the security aspects and basic importance of the nation's power industry on which I commented shortly after taking office the first of the year.

The conclusion I arrived at in that February 13th memorandum on power policy appears to be even more apropos in the troubled world today. It was:

> The electric power aspects of the department's programs represent one of its most vital activities. The furnishing of an adequate supply of low-cost power for the homes, farms, and industry sufficient to service a dynamic economy is a matter of basic importance to the economic growth and defense of the nation, and is, therefore, a matter of governmental concern. Utility systems of all kinds—federal, state, municipal, private, co-operative—must carry out their full responsibilities to the public welfare.

Our basic security rests on men and machines—men to tell the machines what to do—machines to do the work. Men

*For additional personal note, see "Pages with the Editors."

need power in their homes and daily lives—machines need power, more and more power, like a hungry animal. On these factors our economy grows and our security grows.

IN peace and in war — even in the strange chronic "cold war" we have been engaged in for so many years—a fundamental requirement of government at all levels, of co-operative producers and of industry, is to provide an adequate supply of energy to power our machines in industry and on the farm, and to light our homes, schools, industrial plants, military installations, and our cities.

During the past half year, I have been exploring some of the complexities of power production and supply, and I do not mind admitting that it has been an eye-opening experience. Most of us regard ourselves as reasonably well-informed on most general subjects, until we get down to specifics and start researching a particular field. Then a little digging begins to open up astronomical vistas of facts and figures which, until that moment, have been in the exclusive province of specialists or academicians.

In my own home, for example, I had been generally aware of an increase, over the years, in the use of electrical energy for such new or augmented requirements as air conditioning and more and larger appliances. But it was somewhat of a statistical shock to discover that the American home now consumes nearly one-third of the total of electricity sold. The industry has figures to show that residential use of electricity has almost tripled during the past decade.

This trend to what might be called "electric living" and the increasing dependence upon electricity in our daily lives are reflected in total production figures. In 1959, for instance, the U. S. produced nearly 800 billion kilowatt-hours of electricity, or almost 40 per cent of the entire world production. This truly is one field in which we have consistently outpaced the Russians, but it should be noted that our Communist competitors are safely in second place with 248 billion kilowatt-hours, roughly more than the production of the United Kingdom and Canada combined. And we are carefully watching what Russia does in the development of her rich potential of hydroelectric energy.

This interest by the federal government in what another nation may be doing in electrical generation and in overall economic productivity has been heightened by the competition of the cold war. But it is true that there has always been a large amount of government interest and participation in the production of electric power at reasonable rates in this country. The very fact that investor-owned companies must obtain licenses, permits, and franchises from governmental agencies is evidence of the fact that supplying power is a governmental responsibility and has been accepted as such for a good long time.

IN fact, one of the basic congressional authorizations under which the Department of the Interior operates to grant rights of way through public lands for electrical plants, poles, and lines for power generation and transmission, dates back to the act of February 15, 1901. The Town Sites and Power Develop-

ment Act of April 16, 1906, granted the Secretary of the Interior the authority to lease surplus power from irrigation projects. This act, passed by the Congress more than a half-century ago, contained the first congressional expression of the now well-known "preference clause," which gives preference in federal power marketing to municipalities and other nonprofit consumers.

DURING the intervening half-century, one would have surmised that the private power industry would have been able to work out a modus operandi for co-operation with government on a positive basis to the mutual benefit of all concerned. Unfortunately, this has not occurred in some quarters. Some have a tendency to consider the rôle of government in the field of power only as an evil to be tolerated. Others have acquiesced to accept public power as a mutually antagonistic partnership, subject to tightly held suspicions and extremes of temperature changes; others, I am pleased to observe, have recognized that the federal government and other governmental agencies are inescapably involved in the electric industry and its future and that this will be increasingly true in the future. For this latter group, the domestic scene is reasonably tranquil and I believe that both they and the governmental units with which they come in contact have benefited mutually from these improved relations.



MY years in the Congress have, I believe, given me an opportunity to consider this matter with some detached judgment and a high degree of impartiality, since I came to Washington with no preconceived ideas and since my constituents included both publicly owned and privately owned utilities. For one thing, my congressional experience impressed me with the basic problems involved in drafting and passing legislation involving public resources such as water and hydro power sites. It was readily apparent that Congress has a responsibility to enact legislation which is designed to spread the benefits from the public expenditures as widely as possible among the taxpayers. The preference given to public agencies in the purchase of power is a mechanical device for achieving this objective, and that explains the major reason why the preference clause has flourished and endured.

It can be admitted that in some isolated instances the very desirable objectives of the preference clause have not been achieved, or at least achieved to the ultimate degree. None the less, the Congress has a responsibility of preventing, or at least reducing to a minimum, private advantage at public expense, and there is little doubt in my mind that the preference clause is here to stay, both as an

element in legislation and as a policy of the executive branch.

THE preference principle was in fact incorporated in the five basic principles of the administration's power program as enunciated by President Kennedy. The principles, originally advanced by the department and the Congress in the 1940's, are:

1. Federal dams shall where feasible include facilities for generating electrical energy.

2. Preference in power sales shall be given to public agencies and co-operatives.

3. Power disposal shall be for the particular benefit of domestic and rural consumers.

4. Power shall be sold at the lowest possible rates consistent with sound business principles.

5. Power disposal shall be such as to encourage widespread use and to prevent monopolization.

To implement these basic principles, I have directed Assistant Secretary Kenneth Holum to take those measures necessary to encourage vigorous leadership in the marketing of federal power to produce the maximum benefits for the people of each area, and to give immediate attention to:

1. Determining the proper rôle of each agency in its area;

2. Expanding the planning activities of the department to make possible the timely construction and full development of new projects and facilities;

3. Achieving the maximum practicable amounts of firm power for the ultimate use from federal power systems;

4. Enlarging regional co-operative pooling of generation and transmission facilities; and

5. Planning for the early interconnection of areas served by the Department of the Interior marketing agencies with adequate common carrier transmission lines.

There is ample precedent for vigorous co-operative action in this field.

HOOVER dam, the first large multiple-purpose project of the department's Bureau of Reclamation, was made possible largely by the co-operative action of the public and private power agencies in the Los Angeles area. In the early 1930's, when many skeptics scoffed openly at the prospects of plugging the Colorado river gorge with concrete, or that there would be a market for all the power produced there, the City of Los Angeles Department of Water and Power and the Southern California Edison Company contracted to operate the project generating equipment and, with other customers, to buy firm and secondary energy produced by the project through 1987. This not only made possible a self-supporting and self-liquidating venture, but the construction of the big dam saved the Imperial valley from floods and contributed water and power for the tremendous population and industrial growth in southern California and related areas.

It is also significant in these times, that Hoover power plant generators during World War II supplied more than half the energy required for war plants in southern California, southern Nevada, and Arizona. This great project shows

what can be accomplished when government and private industry co-operate to their mutual advantage.

ANOTHER area where a large degree of co-operation has been attained is in the Pacific Northwest. Here the Northwest Power Pool was created during World War II as a result of a War Production Board order directing utilities throughout the U. S. to co-operate with one another in order to increase electric capacity so as to take on added war loads. This pooling arrangement between public and private systems, entirely voluntary, has been operating very successfully for nearly two decades, resulting in tremendous economic and operational benefits to the Bonneville Power Administration and to the other major power systems in the Northwest which have interconnected and co-operated for the good of all.

These demonstrated advantages of interconnections between systems in the Northwest have underscored the importance for boldly meeting the need for interregional transmission lines, as advocated in the President's resource message.

This governmental interest in interregional grids is currently being reflected in the private power industry. The mid-April issue of *Electrical World* described conceptual plans leading to the building of a "superpower grid" by a group of investor-owned companies centered on the Southwest Power Pool. This proposed grid will involve at least 4,000 miles of 345-kilovolt and 230-kilovolt line in eight midwest and southwest states and will cost in excess of $300 million, according to *Electrical World.*

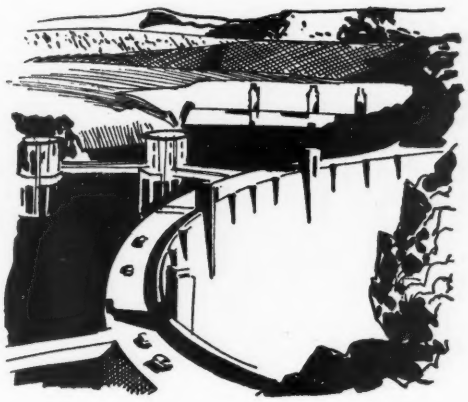
We are heartily in favor of the construction of interregional grids and the benefits they can provide. It is my hope that co-operative action by government and industry in this area not only will be mutually advantageous to both, but also will lead to greater co-operation and the elimination of unwarranted antagonisms.

However, it remains to be seen whether private utilities outside the Pacific Northwest are ready to forego control of certain areas to co-operate on common carrier lines in the interest of building the electric industry and better serving the area needs. There is also a widespread area of co-operation between government and private industry as it relates to the standardization of voltage that should be used on existing high-voltage lines. In my opinion, both areas of co-operation could well be explored by both governmental and private interests.

My fundamental position is a "moderate approach" to the conservation and use of the nation's resources. I would attempt to settle any differences that exist between extremists in the conservation and big business camps. I will make no attempt to exclude private participation in the development of power resources.

WE usually get things done by using a little give-and-take. We can advance the interests of the respective groups, and of the nation as a whole, by mutual trust and co-operation. In these difficult times, we can do no less than try to do our level best.

The Delaware River Basin Compact



Eight major single-purpose projects about evenly divided between Pennsylvania and New Jersey, will comprise the program envisioned by the Delaware River Basin Compact. Included in the features will be water pollution control, water storage, conservation, hydroelectric power, recreation, and land reclamation.

By The Honorable FRANCIS E. WALTER*
U. S. Representative from Pennsylvania

Two highly significant proposals now are under consideration in the Delaware river basin. Each will affect the development of the water resources of the 12,750-square-mile drainage area for decades to come.

One proposal is the comprehensive physical development plan, prepared by the United States Corps of Engineers, which is expected to come before Congress in the near future.

The second proposal is an interstate-federal compact which is now being considered by Congress and the four Delaware river basin states—New York, New Jersey, Delaware, and Pennsylvania.

The urgent needs of the areas serviced by the Delaware river and its tributaries have long been a matter of common knowledge. They extend back into the 1920's. I myself have been urging since the days of the WPA, back in 1933, that steps be undertaken for the development of the great water resources and other potentials of the Delaware basin.

Varied Features Included

THE demands on the basin not only for water, but for dams, reservoirs, pollution control, flood control, watershed management, soil conservation, erosion control, land reclamation, hydroelectric power, recreational facilities, and a whole host of other functions, are mounting rapidly. The present population in the basin area of 16 million is expected to increase to 30 million by 1980 and 42 million by the year 2010. Industrial growth is expected to double by 1980. Over the years I have supported and obtained legislation for federal appropriations to harness the Delaware river's great powers, and develop its enormous potential.

Hurricane Diane, which struck the northeastern United States in August,

*For additional personal note, see "Pages with the Editors."

1955, produced over $100 million damages and took over 100 lives in the Delaware river basin.

Shortly after, Congress requested the United States Corps of Engineers to make a comprehensive survey and prepare a plan for the multipurpose development of the basin's water resources for flood control, industrial and municipal water supply, and the host of other activities which I already have mentioned.

Under the direction of the executive branch, the Corps of Engineers enlisted the help of many other federal agencies that have responsibility for some aspect of water. Many state and municipal agencies also co-operated closely in the survey. The survey cost about $12 million. The planning work is complete and the report is currently under review by the Corps of Engineers.

It is expected that review of the report will be finished within the next few months and that the report will be transmitted to Congress later this year.

The Corps' report recommends the construction of 58 projects, both large and small, over the next fifty years. The sequence of construction is based on projected economic and population growth, and the increase in demand for water that such growth will inevitably stimulate. It is not difficult to explain the importance of the Corps' plan or the widespread popular interest in it.

Outline of Project

THE plan calls for the construction of 11 major multipurpose control projects; eight major single-purpose control projects; and 39 small projects. Total cost of these projects is estimated at about $500 million in 1959 prices.

Of the major control projects, two are to be in the Schuylkill subbasin; four in the Lehigh subbasin; one on the East Branch of the Delaware in New York; one in the Lackawaxen subbasin; one on White Clay Creek in Delaware; one in the Christina river subbasin in Delaware; and one on the main stem of the Delaware river between Pennsylvania and New Jersey. Each of these 11 projects will provide water supply and recreation. All except the two located in Delaware will provide flood control. Two will provide for generation of hydroelectric power.

The two projects having power are Tocks Island on the main stem of the river scheduled for completion by 1975, and Hawk Mountain on the East Branch in New York, scheduled for completion by the year 2002. The former would support an installation of 46,000 kilowatts, a dependable capacity of 20,000 kilowatts, and an average annual generation of 281.5 million kilowatt-hours. The latter would support an installation of 21,000 kilowatts, a dependable capacity of 11,000 kilowatts, and would produce an average annual generation of 93.8 million kilowatt-hours of energy. The Tocks Island project, in addition to the 46,000 kilowatts of conventional hydro, is also suited to the installation of a pumped storage power scheme having an installed capacity of 366,000 kilowatts, a dependable capacity of 342,000 kilowatts, and an average annual generation of 732 million kilowatt-hours.

GEOGRAPHICALLY the eight major single-purpose projects are evenly divided between Pennsylvania and New Jersey. To be operated initially for recreation purposes alone, these projects would

be converted to water supply purposes some time after the year 2010 when the demands for water supply require such a transition.

The greatest recreation potential, however, is at Tocks Island. Here a 33-mile lake, and adjoining lands, would serve about 5 million recreation visitors each year. Plans call for the acquisition of some 40,000 acres of land around this reservoir to be used for park purposes.

With its proximity to large urban populations, and the attractive scenic surroundings, the National Park Service has recommended that the lands around the Tocks Island reservoir be developed as a national recreation area.

The 39 small projects are scattered throughout different parts of the basin. To be developed for watershed protection and flood prevention in local areas, most of these projects would be undertaken in accordance with the small watershed program of the U. S. Soil Conservation Service.

No less important to the future of the Delaware than the Corps of Engineers' plan is the proposed interstate-federal compact to create an agency to co-ordinate and foster the development of the basin's water resources. This compact already has passed the New York legislature, and early action is expected in the other three states. It has been my privilege to introduce it in the House (HJ Res 225). A companion bill (S 856) has been introduced in the Senate by the eight Senators from the basin, Messrs. Boggs, Case, Clark, Javits, Keating, Scott, Williams (Delaware), and Williams (New Jersey).

The Problems Ahead

Negotiated by the Delaware River Basin Advisory Committee at the request of the governors of the four states and the mayors of New York city and Philadelphia, the compact will lay to rest many of the conflicts that have plagued the Delaware since early in this century. Perhaps more important, it will create machinery for the equitable solution of future differences that are bound to arise in a basin, such as the Delaware, where the drainage area is relatively small, urban-industrial growth is far advanced, and water demands very heavy.

The Delaware has had ample experience with grand plans that have come to naught. All told, some 30 prior reports have been made for the river or its tributaries, but very little in the way of concrete results has ever materialized. Efforts to negotiate interstate compacts date all the way back to the 1920's: None was successful. The Interstate Commission on the Delaware River Basin (INCODEL) prepared a comprehensive water supply plan in 1951, but the interstate agreement necessary to carry it out



was not approved by Pennsylvania. The issue of water allocation between states and their local subdivisions has twice resulted in litigation before the U. S. Supreme Court.

FROM the earliest days of this century it has been recognized that river basins are, hydrologically speaking, single units that must be planned and developed under an integrated, basin-wide approach. Existing organization of government does not, however, lend itself readily to co-ordinated river basin development. For the Delaware there are 43 state agencies, boards, or commissions having some kind of responsibility for water. Numerous local units of government in the four states also share in this responsibility. Add to this the 19 federal agencies having jurisdiction over one or another facet of water, and it is soon apparent that a central co-ordinating device is vitally needed. Creation of such a co-ordinating device is the objective of the Delaware basin compact. How would this be done?

Parties to the compact would be the federal government and the four basin states. The compact's principal purpose is to create a regional interstate-federal administrative agency to act for, and be responsible to, the five signatory parties in the planning, development, and control of the basin's water resources. The compact agency would be governed by a five-member commission consisting of the four governors and one person appointed by the President. The life of the compact is 100 years and it automatically renews itself for a second 100-year period unless one of the signatory states, between the seventy-fifth and eightieth years, gives notice of its desire to withdraw from the agreement.

The Compact Commission

EXCEPT for navigation, the compact commission would have power to formulate and keep current a comprehensive plan covering all aspects of water development and control. The just-discussed Corps of Engineers' plan would be the basis for the initial comprehensive plan of the new commission, and it would be updated as conditions change in future years.

Existing agencies would retain their authority to construct projects, but the commission would be responsible for insuring that such projects are not in conflict with the comprehensive plan. In those cases where the use of existing agencies to fill a specific program need proves infeasible, then the commission could itself construct and operate projects.

The commission would not, however, have jurisdiction over existing or future navigation improvements. The commission is also responsible for allocating water among the four states and their political subdivisions in accordance with the Supreme Court doctrine of equitable apportionment which takes into account alternative sources of water, relative needs, and changing uses.

IN the event that the commission some day should undertake revenue-producing projects, it could borrow money and issue revenue bonds, but it could not pledge the credit of any signatory party. It could also receive appropriations, grants, or loans from federal or state government.

No taxing power would be vested in the commission, but it would be permitted to make reasonable charges for products and services available from improvement projects. The current expense budgets would be apportioned among the signatory parties by unanimous vote of the commission members and each signatory party reserves its usual budget review over the amount so apportioned.

Capital budgets requiring capital contributions from the signatory parties would be negotiated by the commission, and such capital contributions by the signatory parties would be proportionate to the distribution of benefits from the proposed improvement.

THE compact would not change present laws relating to riparian rights, and present water users would be protected from charges and assessments to the extent of their present rights to natural flows.

Other protections are also provided by the requirements that (1) meetings of the commission be open to the public; (2) public hearings be held prior to the adoption of a comprehensive plan, the annual budgets, or the letting of any contract, and in other specified cases; (3) annual audit be made by an independent auditing firm; (4) any signatory party be entitled to examine all books and records of the commission; (5) annual reports be made and published by the commission; and (6) judicial review as to the reasonableness of the commission's actions.

The Power Feature

SINCE readers of this magazine have special interest in the field of power, a short description of that section of the compact is in order. The commission would be authorized to develop and operate, or cause to be developed and operated, dams and other facilities for the generation of hydroelectric power. It could provide transmission facilities for power produced by it where such facilities are not otherwise available upon reasonable terms, but only for the purpose of wholesale marketing. Finally, the commission could contract with other public agencies or with public utilities for the development of hydroelectric power and energy through the use of dams and related facilities. The commission would fix the rates and charges for power produced by its facilities and the compact provides that such rates must be "reasonable, nondiscriminatory, and just."

Having on the one hand enough water at the right time and place, and on the other hand avoiding the misery of floods, are among the most important determinants of the future economic welfare of the residents of the Delaware river basin. The Corps of Engineers' physical plan, and the interstate-federal compact, are the twin keys to this future. These are the reasons why I am now supporting the compact and will support the Corps' plan when it comes before the Congress.

A Farm Family Visit to a Powerhouse

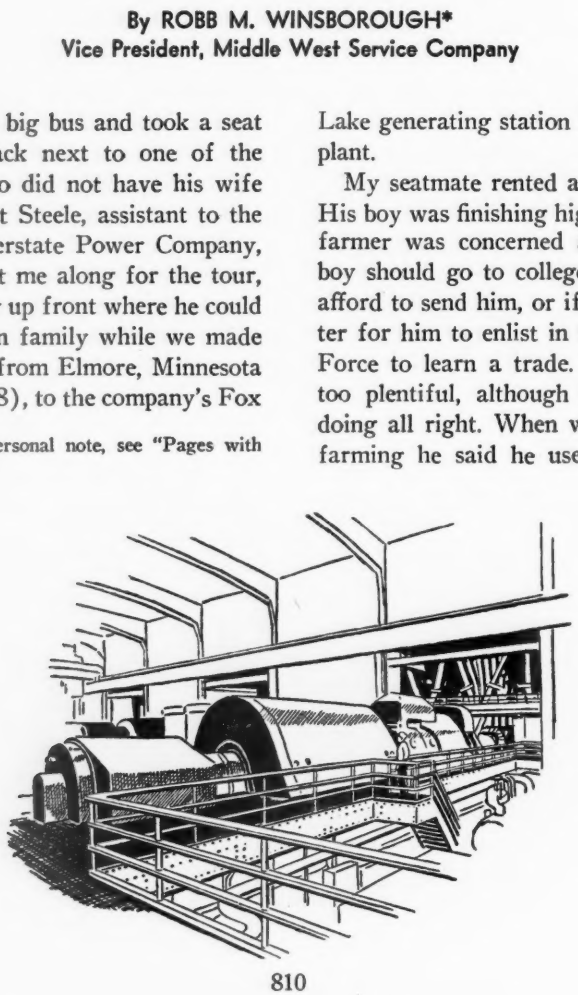
For some years electric utility companies have been featuring plant visitation programs. This is a story about such a program, imaginatively conceived and intelligently handled, for the purpose of acquainting farm families with the operations of their electric utility company. The author, in the rôle of a casual observer, takes us along on the bus ride from start to finish.

By ROBB M. WINSBOROUGH*
Vice President, Middle West Service Company

I GOT into the big bus and took a seat near the back next to one of the farmers who did not have his wife with him. Robert Steele, assistant to the president of Interstate Power Company, who had brought me along for the tour, took a seat closer up front where he could visit with a farm family while we made the 40-mile trip from Elmore, Minnesota (population 1,078), to the company's Fox Lake generating station for a tour of the plant.

My seatmate rented a farm on shares. His boy was finishing high school and the farmer was concerned about where the boy should go to college, or if he could afford to send him, or if it would be better for him to enlist in the Navy or Air Force to learn a trade. Money was not too plentiful, although he said he was doing all right. When we got around to farming he said he used a lot of elec-

*For additional personal note, see "Pages with the Editors."



tricity on the place: for pumping, refrigeration, in the shop, and for cooking and water heating. So he was glad to be making the trip to the power plant to see where the stuff was made, and to have a little outing.

THE bus was full of pleasant chatter as the farmers and their wives visited across the aisle and over the backs of seats with others they knew and with some they had just met for the first time in the company office, while they were getting their identification badges.

Steele and I had gone into the Elmore office about 1.30, with departure for the plant set for 2 o'clock. The company people were like any other host and hostess just before the party starts—a little nervous, trying to make sure all the last-minute things had been taken care of. And they had been.

O. W. Styve, rural representative, known to everyone as "Ole," was on hand to greet the farmers and their wives. He had called on all of them, in person or by telephone, as a follow-up to the invitation letters which had been mailed two weeks before. Those he did not know he had visited in person, using the phone only where he was already known.

Miss Phyllis Kessel, local cashier, had prepared the stick-on identification badges with the names of everyone. These were given to the farmers and their wives as they collected in the office before the buses were loaded.

Seventy people were milling around in the office, visiting, joshing, being introduced, inspecting appliances, and having a good time when word came to load the two big buses out front. We all went out, got in, found seats, the drivers closed the doors, and we were on our way to Fox Lake generating station.

The Day of the Party

IT was March 28th. The snow was almost all off the ground and there had been enough rain to make things muddy. But the trip was pleasant and uneventful. At the power plant boards had been placed on the ground for a dry walk, and we all assembled with dry feet in the plant office where folding chairs had been set up.

Forty-one men and thirty-six women were in the audience when J. G. Halbmaier, assistant district manager of the Winnebago district, opened the presentation. A warm welcome to the plant was naturally the first thing, and an explanation of the tour and dinner schedule. This was followed by a quick, clear presentation of the main transmission system in that district and the location of the plant on the system. The general operating method of the company, in eleven operating districts, etc., was explained clearly and adequately without getting bogged down in too much detail.

The men were then taken out of the meeting room into the plant for the tour, broken up into small groups of seven or eight to the group, each with a guide. The tour was well-conducted, each group seeing and hearing an explanation of the whole process from the coal pile, through the boiler room, turbine room, condenser pit, and on to the step-up substation in the yard.

A Quiz for the Ladies

WHILE the men were touring the plant the women had fun with the Reddy Kilowatt Quiz—one of the real high spots of the trip. Each lady was given a sheet

containing five questions with multiple choice answers. Mr. Halbmaier read the questions one at a time and asked the women to circle their answers. When he had read all the questions and they had answered all of them, he then asked the group to tell him how they had answered them, and he wrote the answers on a blackboard in front of the group.

The ladies thought this was great fun and they were amazed at how far they had missed some of the answers, and how right they had been on others.

The first question was: Who Do You Believe Owns Interstate Power Company? The multiple choice answers, from which the right answer was to be selected, were: federal government, several large corporations, state government, thousands of private citizens, a small group of millionaires.

TWENTY of the women got the right answer: thousands of private citizens. Twelve of the women thought the company was owned by several large corporations. Three of the women thought the state government owned Interstate Power Company. One woman thought it was owned by a small group of millionaires. None of the women were so badly mistaken as to think the federal government owned it.



QUESTION 2 was: Of the Electric Service Bill You Pay Each Month, How Much of Each Dollar Would You Estimate Will Be Paid as Taxes? The multiple choice answers were: 2 cents, 4 cents, 8 cents, 10 cents, 15 cents, 17 cents, 20 cents, 25 cents, 30 cents.

Nine of the women, or 25 per cent, got the correct answer of 20 cents. Most of the rest of the women gave answers that were considerably below the 20-cent figure.

Question 3 was: Of the Electric Service Bill You Pay Each Month, How Much Would You Estimate Is Left as Profit after All Expenses Have Been Paid? Multiple choice answers were: 1 cent, 3 cents, 4 cents, 6 cents, 8 cents, 10 cents, 15 cents, 20 cents, 30 cents.

Eleven per cent of the women got the right answer and most of the remainder got answers that were too high.

Question 4 was: What Would You Estimate Is the Gross Hourly Income That Interstate Receives from Elmore, Minnesota? Multiple choice answers were: $1, $3, $5, $8, $10, $15, $30, $60.

Nineteen per cent of the women got the correct answer of $10 an hour. Most of the rest of them gave lower answers.

Question 5 was: What Would You Estimate the Per Cent of Time Electric Service Was Rendered to Our Customers during the Past Year? The multiple choice answers were: 75 per cent, 85 per cent, 95 per cent, 97 per cent, 99 per cent, 99.9 per cent.

The women really knew that the serv-

ice was good. The correct answer is 99.9 per cent and 74 per cent of the women gave that answer.

MR. Halbmaier wrote the multiple choice answers for Question 1 on the board and asked the ladies to hold up hands showing who had given the first answer, "federal government," and then he wrote the number of women opposite this answer. He then asked for those who had given the second answer, "several large corporations," and wrote the number on the board opposite that answer. When he had finished all the answers to this question and the women could see how many had given each answer, he then made the point that Interstate was owned by 21,787 different investors, from all walks of life, in all 50 states and many foreign countries, that 3,000 of the stockholders lived in Iowa, and that no single stockholder owned enough to dominate the company.

The company had mailed its annual report to all 14,000 farm customers and several women said they had gotten the right answer by reading the report before they came. There was a general expression of approval by the group when the annual report was mentioned.

ON Question 2, about taxes, Mr. Halbmaier went through the same process of putting the answers on the board and then pointed out that the correct answer was that taxes took 21 cents out of the customer's electric service dollar.

While discussing taxes, Mr. Halbmaier also talked about the difference in interest charges paid by Interstate and paid by the rural electric co-operatives which operate on 2 per cent federal money. He put convincing figures on the board to show that Interstate actually sold electricity cheaper than the co-operatives did when tax and interest differences were taken into consideration. This demonstration and calculation brought expressions of surprise and nods of approval from his audience.

On Question 3, about profit, after putting the answers of the group on the board, Mr. Halbmaier pointed out that Interstate earns only enough profit to give a reasonable return on the money invested to serve its customers.

ON Question 4 everybody had fun. Mr. Halbmaier put the answers on the board showing how the women had answered the question about Interstate's hourly income in Elmore, population 1,078. The correct answer was $10 an hour for the whole year. Then Mr. Halbmaier put on the board the figures for the local Elmore liquor store. The ladies were heard to gasp when they saw that Elmore spent a good deal more for liquor than it did for electricity. The liquor cost amounted to $13 an hour. This demonstration of the liquor store income was possible because they are required by law to publish the sales figures in Minnesota.

On Question 5, concerning continuity of service, after putting up the answers of the group, Mr. Halbmaier pointed out that the right answer was 99.9 per cent, which is a little better than Ivory soap. This gave him an opportunity to talk about the problems of ice storms, etc., and the difficulties that can arise to mar this record. He used this chance to stress the availability of extra crews and trucks, the value of multiple sources of supply on the transmission lines, and through



interconnections. The women were impressed.

At the close of the Reddy Kilowatt Quiz Mr. Halbmaier spoke seriously about the competition with the electric co-operatives. He said again that the company had to meet tax costs and money costs which the co-ops escaped, and that while the company was not complaining about the co-ops, he wanted the farm customers of Interstate to know the reasons behind the electric rates, and to know the special favors the co-ops were given in tax exemption and privileged interest rates. The audience paid intense attention to this talk.

The Male Contingent Reports

THE men were just completing the tour of the plant and coming into the meeting room as Mr. Halbmaier finished. The ladies were then taken on the plant tour while the men sat down and took the Reddy Kilowatt Quiz, just as the women had done. Mr. Halbmaier made the same points with the men as he had made with the women, and the response of the men was equally favorable and somewhat more spirited.

When the women returned from the tour the whole group, men and women together, heard short presentations about other parts of the company's business. Glen Burkholder, power plant superintendent, talked about the plant operation and property value and plans for plant expansion which are under way. Paul Franta, district operating superintendent, described the work of the operating department and some of the problems and how it serves the customers. W. J. McMichael, district auditor, described the accounting department, meter reading, billing, and the problems of serving thousands of customers. L. Isenberger, district business development supervisor, described the sales department and its work in serving the customers.

Mr. Halbmaier closed the presentation with a nice speech of thanks and said they were ready to leave for their steak dinner at a roadside steak house famous in the locality. So everybody piled outdoors to find a seat in the bus for the ride to the restaurant.

THE restaurant did a good job. The food was good, the service was good.

The members of the party enjoyed the food and the talk, which was lively. Interstate persons scattered themselves throughout the party so as to talk to as many people as possible during the dinner.

Each Interstate man answered many questions during the meal and in the short stay afterwards. The questions were serious and in general related to the fact that Interstate provided such good service and still paid such heavy taxes and paid full interest rates.

One of the comments was, "There are very few of us who can't understand this interest business. We have all had to go to the bank for money at one time or another and most of us still do. We know what you mean when you say it is a big item. The difference in this one item, as you showed us, can make a big difference in rates."

Finally the time came to go home. The farmers and their wives found their seats in the buses and started back home, with the talk still going at a lively rate. Later, one of the farmers said, "We had quite a hassle on this tax and interest business on the way home in the bus. There is an awful difference in both these items and it don't seem right."

THIS plant tour for farm customers was one of ten which Interstate Power Company conducted from December through early April. A total of 635 farmers, wives, and teen-agers made the trips, getting the same kind of treatment and information.

This activity was launched by Milton L. Kapp, president of Interstate, in order to give its farm customers a better understanding of the company and to demonstrate the company's deep interest in its 14,000 farm customers. These customers live close to other farmers who are served by co-ops, sometimes at lower rates. All of the time, Interstate's farm customers are being subjected to some of the anti-investor propaganda distributed to co-operative customers. In the absence of effective contact with the company, it is likely that some of Interstate's farm customers will be unfavorably influenced by such incessant propaganda against investor-owned electric companies.

Mr. Kapp was determined to protect Interstate's good name with the farm customers. The power plant tour seemed to offer the most effective method of showing Interstate's farm customers the facilities which serve them, the care and skill the company uses to serve them, and to point out some of the special privileges given to the co-ops at the expense of all federal taxpayers and nonco-op electric users.

THE evidence is strong that such tours accomplish a great deal of good. About a week or ten days after the tours, company rural representatives call on the farmers and wives who went on the tour and let them talk about it. The comments run like this:

> "Those taxes are way out of line. Everybody should pay the same taxes. We shouldn't have to pay them."
>
> "We have excellent service. My brother on REA does not have nearly as good service. He wants to build a line over here and use ours."
>
> "We have had very good service for years. We couldn't operate without you folks."

"Everyone in your company is so accommodating and nice."

"We can see now why your rates have to be higher, paying those taxes."

"Our service is 100 per cent, not 99.9 per cent like you showed on the quiz."

"You should take all your customers on a tour like that. We sure learned a lot."

"We thought our bills were high, but we have changed our minds."

"Didn't know it took so much equipment."

"Taxes certainly are unfair. I moved from REA to our present home and am well-satisfied with Interstate."

"Had a fine time and we are well-satisfied. Since the trip compared our bill with an REA customer and you are very fair. Actually wonder how you operate so close."

DOZENS of such comments have been received and could be quoted. The thread that runs through them all is that they enjoyed the trip, they were impressed with the amount and cost of the equipment needed to serve them, with the record of good service, with the quality of the employees, with the behavior of the employees, and with the figures given them in the Reddy Kilowatt Quiz.

A second thread runs through the comment. It is to the effect that they are glad to know the tax and interest differences, which they did not previously know, and that they think such special privilege is unfair and should be stopped.

Conducting such tours successfully requires careful planning and attention to detail. The first step is to make out a list of customers to be invited from the area. There is a limit to the size of the group that the power plant can handle properly at one time and this determines how many to invite. Acceptances run about 50 per cent to 60 per cent of the invitations, if the invitations are followed up by telephone or personal call.

IF the group is to go by bus, meeting places and times must be determined to fit the schedule and everyone must be informed and gotten there on time. Parking problems should be anticipated for

INTERSTATE POWER COMPANY
RURAL PLANT TOURS

			Attendance			*Meals*	
Date	*District*	*Area*	*Men*	*Women*	*Total*	*Noon*	*Evening*
11-28-60	Winnebago	Buffalo Center-Titonka	16	14	30		X
1-19-61	Winnebago	Lakota-Rake	25	22	47		X
2- 6-61	Winnebago	Swea City-Ledyard	24	23	47		X
2- 6-61	Decorah	Cresco	26	28	68*		X
2-20-61	Winnebago	Delavan-Easton	22	21	43		X
3-14-61	Northwest	Ellsworth-Hills			28		X
3-21-61	Albert Lea	Albert Lea West Sector			94	X	
3-22-61	Albert Lea	Albert Lea West Sector			117	X	
3-28-61	Winnebago	Elmore	41	36	77		X
4- 6-61	Dubuque	Dyersville	47	37	84	X	
					635		

*Includes fourteen children.

the farmers' cars, and arrangements made so they will not be fined for over staying parking meters, etc.

Identification badges are a must, made out ahead of time, and ready for quick distribution. The welcoming committee should hand them out and should introduce groups of farmers to one another.

The plant tour itself must be carefully planned and rehearsed. The guides need to practice. Loud-speakers may be needed. Small groups that can stay close to the guide help. Small battery-powered amplifying megaphones can help. Signs on equipment telling the cost and what the equipment does in terms of service to the customer are very beneficial. Some of these signs can be left permanently.

The meal arrangements should be good and dependable. It is especially good if the restaurant can reserve that night for the tour group only, so the group has the house to itself. This makes for more open discussion and more relaxed participation by everyone. The food itself should be good, and something the farmers do not usually prepare for themselves.

THE time of day can be important. Most farm families have chores in the evening, so it seems to work out best to let the tour start about two in the afternoon, get the plant tour finished in time for a six o'clock meal and let them get back home by 8.30.

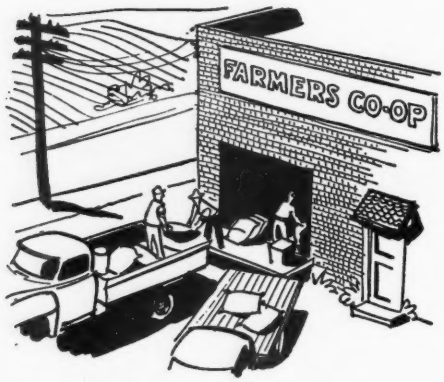
The fall, winter, and early spring may be the best times. Summer is likely to have so much work that getting away would be difficult for some farm families.

Interstate Power Company has conducted ten such tours successfully since last December. The table on page 816 shows the dates, places, attendance, and meal arrangements.

EEI 1961 CONVENTION TIMETABLE, NEW YORK, NEW YORK

	Sunday, June 4th
1:00 p.m.	Registration, Ballroom entrance, Waldorf-Astoria Hotel (till 6 p.m.).
	Monday, June 5th
8:30 a.m.	Registration, Ballroom entrance, Waldorf-Astoria Hotel (till 5 p.m.).
2:30 p.m.	First General Session, Ballroom, Waldorf-Astoria Hotel.
5:30 p.m.	President's Reception, Ballroom, Commodore Hotel (till 7:30 p.m.).
	Tuesday, June 6th
8:30 a.m.	Registration, Ballroom entrance, Waldorf-Astoria Hotel (till 5 p.m.).
9:30 a.m.	Second General Session, Ballroom, Waldorf-Astoria Hotel.
12:00 noon	Ladies' Luncheon and Fashion Show, Ballroom, Astor Hotel, followed by sight-seeing cruise around Manhattan Island, aboard excursion boat, *Peter Stuyvesant*.
2:30 p.m.	Third General Session, Ballroom, Waldorf-Astoria Hotel.
	Wednesday, June 7th
8:30 a.m.	Registration, Ballroom entrance, Waldorf-Astoria Hotel (till 3 p.m.).
9:30 a.m.	Fourth General Session, Ballroom, Waldorf-Astoria Hotel.
2:30 p.m.	Fifth General Session, Ballroom, Waldorf-Astoria Hotel. Presentation of The Edison Award.

Secure Power for Rural Co-operatives



Since taking office early this year, the new REA Administrator has announced that he will explore, in conjunction with other agencies of the government and the electric industry, the best ways and means for developing rural power supply. How can the electric utility companies expect to participate in this program? This article outlines the present REA policy as it may affect the electric utility companies, as well as the co-operative borrowers.

By The Honorable NORMAN M. CLAPP*
Administrator, Rural Electrification Administration

On March 9, 1961, when I took office as the seventh Administrator in the history of the Rural Electrification Administration, I announced that we would give top priority to power supply problems in our electrification loan program.

REA and its 988 active electric borrowers are concerned over wholesale power arrangements for two important reasons. First is the rapid increase in demand for electricity on rural systems. In 1960, for instance, the power requirements of our borrowers totaled 29 billion kilowatt-hours. In 1970, according to REA's own forecasters, these requirements will rise to 68.6 billion kilowatt-hours. In 1985, less than twenty-five years away, we predict that demand will climb to 196 billion kilowatt-hours, or nearly seven times the 1960 demand.

The second reason for our concern over power supply is the dependence of most of our borrowers on outside sources

*For additional personal note, see "Pages with the Editors."

of supply. The principal business of REA-financed electric systems is the distribution of electricity to the ultimate consumer.

In fiscal 1960, 15.6 per cent of the total input into REA borrowers' systems was generated by the systems themselves—18 power-type borrowers and 54 distributor borrowers. They purchased the rest. They bought 39.3 per cent from other federal agencies, like TVA. They bought 7.3 per cent from other public agencies, like municipals. They bought 37.8 per cent from commercial power companies. In short, our borrowers depend on others for more than four-fifths of the power they distribute.

THESE two facts—the dependence of REA-financed systems on outside sources of power and the rising demand for rural electricity—make our course clear. It is imperative that we pursue an aggressive policy leading toward more abundant, lower-cost power for rural America under such terms as are necessary to preserve the just rights and security of our REA-financed systems.

We cannot overemphasize the value of the rural electric co-operative systems in bringing the tremendous benefits of electricity to the rural areas of America. They are entitled to fair protection in the areas they have developed in good faith. The rural people who are investing in these systems are entitled to protection for their investment.

We in REA realize, just as any American must realize, the importance of the contribution of power companies in supplying the energy requirements of the United States. We hope that power companies reciprocate these feelings and acknowledge the contribution of others in the industry. No single source of power will supply all our needs in this country. There is a place in the picture for all segments of the industry to serve the public need and the public good.

REA's Silver Jubilee

THIS year we mark the twenty-fifth anniversary of the signing of the Rural Electrification Act of 1936, which transformed REA from an emergency relief agency into a lending agency and gave a preference to co-operative-type loan applicants. When the act was written, the first supporters of rural electrification in the Congress had more in mind than just the physical task of building electric lines to farms and rural homes. They also wanted rural people to receive the benefits of area coverage and low-cost power. That is why the Congress decided to give an REA loan preference to nonprofit organizations.

The idea proved practical. Today 926 of our active electric borrowers are co-operatives and another 58 are public power districts or public bodies. Together, they serve about half of all electrified farms in the United States, and the dream of area coverage has become practical. Because of their nonprofit organization, they are tied closely with the interest of the people they serve. They have kept their sights trained on delivering low-cost power to rural people. Yet they are also a form of private enterprise in its best tradition—the private enterprise of people helping themselves. They retain grass-roots control of their own enterprises. It would take a prejudiced man indeed who could not see today that the creation of these co-ops has proved

healthy and beneficial for the power industry, as well as for millions of rural people. The co-operatives have built a greater use of electricity and have injected a much-needed element of competitive discipline into the industry.

THERE have been many changes in America since the Rural Electrification Act was signed twenty-five years ago, but one fact has not changed. Nonprofit co-operatives still stand as one of the best assurances of low-cost power for rural people. By following the middle road between commercial power companies, organized for profit, and government ownership of power facilities, they have made a unique and valuable contribution to the American power industry.

At REA, we believe that the growth of these locally owned and controlled co-operatives is an important contribution to the prosperity and growth of the rural areas they serve. We believe they make an important and distinctive contribution to our economy. And when we consider the future security of rural electric co-operatives, the question of their power supply becomes a critical one. It must not become their Achilles heel.



The industry is probably aware that in past years, REA has approved generation and transmission loans under two general conditions:

> When no adequate and dependable source of power is available to meet the needs of the distribution system; or
>
> When the rates offered by existing power sources would result in a higher cost of power to the system than the cost from possible facilities financed by REA.

REA Looks at Generation-Transmission

SINCE March 9th, we have been taking a careful look at REA's generation and transmission policy to make sure it goes far enough and is flexible enough to meet changing conditions. We feel that there are a number of factors which need to be considered in making decisions on new G&T loans. It is no longer sufficient to judge the desirability of new G&T starts from the standpoints of adequacy, dependability, and lower cost alone. We also must be certain that co-operatives enjoy a supply of power which will guarantee the co-operative device its proper place in the power industry.

One way to obtain this guaranty is for a co-operative to generate its own power. The other way is through a wholesale power contract that is fair and equitable.

It is not our purpose here to dwell on the difficulties which frequently arise to mar relations between our borrowers and other segments of the industry. It must be pointed out, however, that in working toward our common ends, it is vital to es-

tablish a climate of good faith under which negotiations between co-operatives and companies can be conducted. Frankly, with encroachments on co-operative territories mounting, and with renewed insistence by some power companies upon getting the benefit of industrial loads in rural areas through dual rate clauses and other gimmicks, it is exceedingly difficult to create this climate of good faith today. At the moment, we cannot help but feel that the burden of proof of good faith rests with the power companies.

REA is weary of examining wholesale power contracts which deny a co-operative the right to serve a legitimate consumer in its service area. There is nothing in the Rural Electrification Act to prohibit a co-op from serving a large load, so long as it is presently unserved and is located in a rural area under the definition of the act. In fact, the law specifically defined REA loan beneficiaries to include both farm and nonfarm population.

The act authorizes the REA Administrator to make rural electrification loans "for the purpose of financing the construction and operation of generating plants, electric transmission and distribution lines or systems for the furnishing of electric energy to persons in rural areas who are not receiving central station service . . . "

The low consumer density in the service areas of many electric co-operatives, coupled with our borrowers' devotion to area coverage, makes it vital to their financial security that they serve all rural loads, large and small: farm, nonfarm residential, public, commercial, and industrial.

We all know some of the ways in which power suppliers have threatened the existence of co-operatives. There is a co-op in Texas which asked its power suppliers for an additional 300 kilowatts to serve a new industrial load in its area. The company declined, insisting that its transmission line lacked the capacity. Later, the supplier built a tap off the same transmission line and served the new industry itself.

There are many variations on this theme.

New Supply Contract Requirement

FROM now on, when an REA borrower negotiates with a wholesale supplier, we want to see a contract emerge from those negotiations which guarantees our borrower adequate power to serve all consumers within its service area at reasonable rates. We also want to see a contract which will provide the necessary guaranty that these benefits cannot be withdrawn at the whim of an unfriendly supplier. No co-operative can remain secure if its power wholesaler remains in a position to pull the rug out from under it.

If a co-operative, after careful negotiation, is unable to secure an equitable contract, and it turns to REA for help, we are going to have to examine the possibilities of generation. The extent to which our borrowers have to resort to their own generation and transmission can be determined in large measure by the attitude and actions of those who are presently supplying their wholesale power.

In looking at the power supply problems facing our borrowers, we also recognize the fact that an abundant supply of power will not be achieved solely by

REA borrowers or by power companies. This administration has stated that the development of natural resources in our nation and the generation and transmission of electric power in federally owned facilities have had a direct and important impact on the rural electrification program.

We favor strict enforcement of the public preference clause in power marketing for power generated at federal plants.

UPON taking office, I announced that REA will explore, in conjunction with other agencies of the government and with the electric industry, the means and methods of interregional transmission ties so that surplus or secondary power of one area can be used in other areas of power shortage and so that the benefits of low-cost hydro power can be shared more widely by rural consumers generally.

As President Kennedy made clear in a pre-election address at Billings, Montana, this administration wants federal interties constructed to link power areas served by the big federal hydro projects. We have an interest in this plan, for we are convinced that interties will help relieve peak-load problems and make more electricity available to our borrowers in areas chronically short of power. The new Assistant Secretary of the Interior for Power, Kenneth Holum, has indicated a desire to work closely with REA and its representatives in planning for these interties.

THESE are a few of our initial decisions in considering the power supply complexities faced by rural electric cooperatives today. Our ultimate concern is with the rural consumer, who has used low-cost power to make rural America more productive and a better place to live. The co-operative he helped to organize must be provided with the means and protection necessary for it to continue to serve him.



The Rise of the Common Market

"IN a world that is being fragmentized by the rise of new and often tiny states there is nevertheless a trend toward economic integration, larger common markets, and free trade areas. This trend has produced the Central American Common Market and the West Indies Federation in this hemisphere. But it has made its greatest gains in Europe, where it has produced both the European Economic Community and the European Free Trade Association which, though rivals now, move in the same direction."

—EDITORIAL STATEMENT,
The New York Times.



Electric Rates of the Future

The value of service as a component factor in determining electric utility rates for the future is not well appreciated by regulatory authorities and virtually unknown to nonspecialists in regulation. Can we expect greater simplicity of rate forms and features in future rate making?

By STUART W. JOHN*

THE *electric paradox* is a term that might well be applied to the extraordinary but well-known phenomenon presented by the increasing cost of almost everything that is used in the production and distribution of electric service and the concomitant decrease in the average price at which electrical energy is sold. For many years we have seen charts showing the downward trend in the cost of a kilowatt-hour purchased by the residential customer—and on every hand we have seen charts showing what has happened to the cost of living, to wholesale prices, and, more specifically, we have been acutely aware of the upward trend of wage rates, of the cost of fuel, and the cost of electrical equipment. When plotted on the same sheet the two charts form a familiar "X"—costs moving constantly upward while the unit price of electrical energy moves downward.

PARADOXICAL as this situation has been, we in the industry do not need to ask what made it possible. We know that the industry's brilliant leadership has achieved two important objectives: (1) greatly expanded use of the service, and (2) technological advancement that is staggering to contemplate. We know that it has been the teamwork of these two accomplishments that has made possible the decreasing sales price in the face of constantly increasing costs of doing business.

*Manager, rate department, Commonwealth Services Inc., New York, New York. For additional personal note, see "Pages with the Editors."

Rate Differentials of the Past

LOOKING backward over the great expansion of the industry we may pause to smile indulgently at the concern expressed by Arthur Wright, one of the industry's first-rate engineers, when in 1896 he noted that already there were many electric utilities whose annual output exceeded a million kilowatt-hours. Today, of course, there are more than a hundred utilities in this country with annual outputs of over a billion kilowatt-hours.

But without going that far back, the industry's record of just the past twenty-five years is impressive enough. We find that today sales are eight and a half times as great as they were only twenty-five years ago. Average kilowatt-hour sales per customer have increased from 3,000 to more than 11,300, while the average rate per kilowatt-hour has decreased 31 per cent from 2.46 cents in 1935 to 1.69 cents in 1960. In the residential classification the record is even more impressive. Here the sales per customer increased 460 per cent from an average of 677 kilowatt-hours in 1935 to 3,790 in 1960, while the average rate per kilowatt-hour decreased more than 50 per cent from 5.01 cents in 1935 to 2.47 cents in 1960.

At the same time that these impressive increases in sales and decreases in average rate per kilowatt-hour have been taking place, the Handy-Whitman Index of Public Utility Construction Costs more than trebled—rising from less than 200 to more than 600. The same authority reports an even more spectacular increase in the index of labor costs—electric labor rising from about 270 to 850 and common labor from about 270 to about 1,250. Meanwhile, the cost per million Btu of fuel used in electric generation has more than doubled.

The Impact of Growth

THE technological advancement that helped to make possible the decrease in rates is most dramatically indicated by the decrease in the amount of fuel required to generate a kilowatt-hour—having decreased from 25,175 Btu in 1925 to 17,850 Btu in 1935 and to 10,879 Btu in 1959, according to the Edison Electric Institute. Perhaps of equal, though less obvious, significance has been the increase in the size of individual generating units with resultant decrease in investment and operating labor cost per kilowatt of generating capacity. Significant but less spectacular contributions in the continuing battle against inflation have been made in power transmission and distribution costs through the use of higher voltages, improved techniques, and increased load density.

Now, what of the future? For more than half a century prices generally—the cost of the labor, supplies, and materials needed for the production and distribution of electric service—have been trending upward, but thus far, at least, the combined effect of technological advancement and expansion of output have been able not only to "hold the line" but actually to reduce the average price at which electrical energy has been sold. Will the future see further increases in costs and, if so, will there be sufficient further technological advancement and expansion of output to result in a continuation of the downward trend in the price at which electric service can be supplied?

The Inflation Factor

No one knows the answers to these questions with any degree of certainty. From all present indications, however, it would seem reasonable to expect prices generally to continue upward at much the same pace as in the past. With respect to the expansion of output, who could have foretold, twenty-five years ago, the enormous energy requirements of today's television receivers, home freezers, or automatic clothes washers? Who can now foretell the market potential of the numerous devices that are as yet undreamed of? Among the established uses of service, we know that today millions of homes still want electric clothes washers and dryers, dish washers, water heaters, and air conditioners.

Today a few hundred thousand homes are heated with electricity but the rate of growth of this segment of the business is truly amazing. If the service can be appropriately priced—to be attractive to the user and compensatory to the utilities—the presently unserved potential market in this field alone is nearly as great as the entire present output of the electrical industry for residential, commercial, industrial, and all other uses combined! In the commercial and industrial markets we are probably nowhere near the ultimate saturation for such well-established uses as lighting and air conditioning. And, here again, space heating seems to offer a potentially enormous market. Chemical and metallurgical processes, transportation, and the desalting of sea water may offer still greater potentials—"if the price is right."

With respect to future technological advancement, it is quite obvious that the thermal efficiency of conventional steam-electric generating stations cannot continue to increase as it has in the past. However, the economies resulting from the increased size of generating units still offer great promise and we are, of course, only beginning to explore the potentialities of nuclear generation, of MHD (magnetohydrodynamic) generation, and of pumped storage hydro generation. In the field of power transmission, while 220 kilovolts had nearly a 40-year reign as the highest voltage in use, 345 kilovolts is already a reality and, with 500 kilovolts in test operation, we are beginning to hear of 750 kilovolts. Although distribution cost per customer will almost certainly continue to increase, expansion in use may well be great enough to result in a decreasing cost per kilowatt-hour. Even in the field of customers' accounting and collection expense, increased mechanization and innovations in billing practices appear to offer further possible economies.

The mere existence of a potentially all-but-limitless market and new fields of technological progress does not ipso facto assure the continuation of the electric paradox—of decreasing rates in the face



of continuing increases in costs. Already the industry has reached a well-advanced maturity. The pioneering phase has past. Capturing a substantial portion of the potential market will tax the abilities of the sales people, the engineers, and the rate designers.

The Objectives of Rate Making

In this age of maturity the objective of the rate engineer must continue to be the designing of rates that will make it possible for the utility to render profitably the greatest possible volume of service to the community at the lowest overall cost. This objective, of course, must be achieved without sacrificing the overall rate of return that a financially healthy utility must earn, which is determined by conditions in the nation's capital markets.

The problems to be solved in the future will be more complex than those of the past. The rate engineer must develop a more comprehensive, more penetrating, more sophisticated understanding of the nature and the effects of the costs of providing electric service. He must be more keenly aware of the value of the service to the various classes of customers. He must study and interpret the significance of past and probable future rates of growth of the various markets.

Although analysis of the cost of supplying electric service had its beginning in the work of Dr. John Hopkinson way back in 1892, there remains much to be done—not only in the development of techniques of analysis but more particularly in comprehending and appropriately utilizing the results of such analyses. It is not enough merely to determine the rates of return that are earned by the various classes of service. In fact, an analysis carried no further than this may be a waste of time and money and may even lead to erroneous conclusions that can have costly aftereffects.

In the future, the rate engineer will need to make greater use of his cost data to guide his thinking as to what happens to the utility's total costs when additional customers are served, or when existing customers make increased use of the service, or when system load characteristics change. He will need to think deeply about the *reality* of his cost data. It is all very well to make reasonable *allocations* of cost to the various classes of service, but most of the costs so allocated are joint costs—incurred in serving several classes of customers jointly—and their *reality* with respect to any particular class must always be questioned. Will those costs increase in the same proportion as sales to that class increase? What will happen to those allocations and those concepts of cost if there is a radical change in system load characteristics?

The impact of rising costs affects different companies in varying ways. In one large system it was primarily in the field of power supply; that is, in production and transmission. In such a case, the increased cost affects all classes of service but, percentagewise, the impact is greatest on the largest customers—those served at transmission or primary distribution voltage. Other companies have experienced only minor cost increases in production and transmission but very substantial increases in such costs as distribution and customers' accounting. Here, the impact of increased costs has been greatest with respect to the resi-



dential and small commercial customers. Such cost increases may call for increases in minimum monthly bills and in the charge for the first few kilowatt-hours used per month. Where the increase affects production costs it may be necssary to look closely at the prices applying to terminal energy blocks.

In some respects our collecting of data relating to cost of service may have outstripped our comprehension. This may well be the case with respect to the industry's understanding of the extensive studies of the Load Research Committee of the Association of Edison Illuminating Companies which have followed the brilliant initial leadership of Constantine Bary in discovering and analyzing the relationship between load factor and coincidence factor. It may well be that when the significance of this relationship is fully understood it will have a profound effect on our ideas of cost relationships and of rate design.

The Value-of-service Factor

WHILE most rate engineers are well aware of the importance of the *value of the service* to the user as a factor in rate making, the concept is less well appreciated by regulatory authorities and scarcely at all by the layman. To many, in fact, it seems to have a sinister connotation. Actually, of course, it is a consideration that is, or should be, given effect in all pricing—whether it be the pricing of bananas, hotel rooms, or kilowatt-hours. Reflection of value-of-service considerations in a rate structure may relate to the overall rate level for a particular class of service or it may pertain to the establishment of an extra charge for a premium-grade service or the granting of a discount for a substandard service.

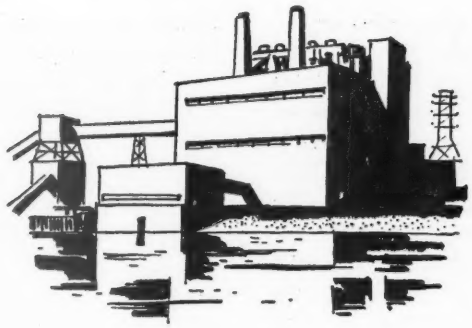
To some extent the value of the service is subject to measurement but to a large extent it is, and probably always will be, best determined on the basis of informed judgment. Only through appropriate reflection of this factor in rate making is it possible even to approach the objective of rendering profitably the greatest possible volume of service to the community at the lowest overall cost. To achieve that objective we must, to the fullest practical extent, avoid underpric-

ing service in relation to cost and either over- or underpricing the service in relation to the value of the service to the user. These considerations will become increasingly important as we reach for larger slices of such tempting markets as house heating, water heating, air conditioning, high-load-factor metallurgical loads, and many others that the future holds in store for us.

THE rate of growth—or decline—of any particular market and its relative size are matters of great importance in rate design. Obviously, the proper pricing of a large, rapidly growing class of service is of much greater importance than the pricing of a small, slowly growing class. Appropriate consideration of these factors can do much to reduce the frequency with which rate increases may be necessary.

The fact that many electric utilities have found it necessary to increase their rates since the end of World War II has not meant the end of the downward trend in the *average* price at which electrical energy is sold. Increased use per customer, so far at least, has been sufficient to result in a continuation of the trend. The fact that such increases have been necessary, however, does indicate that there is a limit to the extent to which increasing costs can be offset by technological advancement and increased use of the service. More to the point in our present discussion, such increases point up the acute need for increased precision in the pricing of electric service. Many of the prospective markets for the service —house heating is a good example—will require low rates if they are to be fully exploited. The establishment of low enough rates for such markets may necessitate increases in rates for certain service which, for some utilities, may at present be noncompensatory. So in the future we may look for increases as well as decreases in rates as the industry moves to adapt its price structures more precisely to the requirements of the total market.

WHAT may we expect in the way of changes in the *form* of electric rates? Certainly even in the interest of minimizing meter reading and billing costs there will be no trend, in so far as residential customers are concerned, toward flat rates—a flat charge per month for a specific service or a flat amount per kilowatt of demand. Such rates have found application in service to electrochemical industries and other inherently high-load-factor services, or for such controlled services as street lighting, but otherwise they are inappropriate in that they disregard important cost-of-service and value-of-service considerations that will become increasingly important in the development of the optimum rate structure. It seems more probable that there will be no radical change in the form of electric rates in the foreseeable future. There must certainly be much greater care in the pricing of the service but this will not require new forms of rates or greater complexity of rates. Rather, our aim should be for greater simplicity of rate forms and features, greater simplicity in metering, and greater awareness of customers' preferences as to rate form.



Recent Developments in Nuclear Power

So-called competitive nuclear power is still in the offing. And while we may have to wait some years before a utility company can decide to build a nuclear power plant on the basis of its own economic performance, much progress is being made in developing engineering know-how, safety regulations, insurance, site location, and other questions are being constantly explored and re-examined.

By HERBERT B. COHN and STEPHEN E. DAVIS*

THE goal of nuclear energy as an economic source of electric power in substantial areas of the United States is still very much in the future. In its 1960 annual report to Congress, the Atomic Energy Commission observed that "we cannot predict exactly when we will achieve costs for nuclear power that can be considered competitive with fossil-fueled conventional plants." The AEC had said in 1958 that it hoped that competitive nuclear power could be realized in *high-cost fuel areas* by 1968. Competitive nuclear power, in the view of the commission, will have been achieved only when utility management can decide to build a nuclear power station on the basis of economic considerations alone.

Although we may have to wait quite a few years before economic nuclear power will be a reality in many parts of the country, a great deal of progress is being made in developing indispensable nuclear engineering knowledge. But the achievement of competitive nuclear power is made all the more difficult by the continual advances in conventional power technology which make it a constantly moving target. And there are a number of current problems on the periphery of the nuclear power field which may also—to a greater or lesser extent—affect its future development.

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Nuclear Plants in Operation or Planned

THERE are today in the United States five nuclear power plants capable of producing significant amounts of electric power. The two largest are the 180,000-kilowatt Dresden plant of Commonwealth Edison Company, which is also the largest nuclear power plant in the world, and the 110,000-kilowatt reactor of the Yankee Atomic Electric Company. The first full-scale nuclear power plant in this country — the Shippingport, Pennsylvania, plant built by AEC and operated by Duquesne Light Company—has a capacity of 60,000 kilowatts and is due to produce 100,000 kilowatts of electricity when a new reactor core of more modern design is installed in 1962; in practice, however, Shippingport's major value has been as a laboratory for research rather than as a power plant.

Eleven additional nuclear power plants are expected to begin operation within the next two years, the largest of which will be the 255,000-kilowatt plant of Consolidated Edison Company of New York at Indian Point, New York. When these are completed, the total production capacity of nuclear plants in this country will be somewhat over one million kilowatts.

THUS far, more research and development effort has been directed to the pressurized water and boiling-water reactors than to other concepts. The AEC has concluded that these concepts, and possibly also the organic moderated and cooled concepts, offer the best prospects of meeting the commission's short-range objective of achieving competitive nuclear power in high-cost fuel areas by 1968. Studies undertaken by the AEC have indicated that a pressurized water or boiling-water reactor plant with a capacity of 300,000 or more kilowatts might produce power for from nine to ten mills per kilowatt-hour on the basis of private financing, which compares with a present range of about four and one-half to seven and one-half mills per kilowatt-hour in the case of newer plants in the United States using conventional fuels. Two California utilities — Southern California Edison Company and Pacific Gas and Electric Company—and a group of New York utilities have expressed interest in the construction of nuclear power stations of water reactor types with capacities ranging from 300,000 to 500,000 kilowatts. The construction of one or more of these plants would indicate whether the cost estimates developed by the AEC can be attained.

To achieve the long-term objective of developing lowest-cost nuclear power, other research projects on various advanced types of reactors are being carried on by the AEC and groups of utility and manufacturing companies. In general, the objectives are to attain lower construction, operating, and maintenance costs through greater neutron economy, lower fuel cycle costs, and higher plant thermal efficiency. This research may provide the answer as to which type or types of reactor will turn out to be the most economical on a long-range basis.

Controversy over Government Plants

A CONTROVERSIAL question with respect to the development of competitive nuclear power is how far the federal government should go in constructing and

operating full-scale nuclear power plants. Over the last several years there has been an uneasy truce under which, for the most part, the AEC has concentrated its own activities on research and the construction and operation of small-scale experimental reactors while encouraging large-scale construction and operation by utility companies.

The Kennedy administration now proposes to convert the government-owned reactor under construction at Hanford, Washington, originally designed for the production of plutonium, into a dual-purpose reactor with a capacity of 650,000 kilowatts when operating as a dual-purpose reactor and 750,000 kilowatts when operating for power production purposes only. The schedule for the addition of electrical facilities calls for completion of the plant in late 1964, and the AEC authorization bill for 1962 includes an amount of $95 million for the conversion. Whatever else may be said for the proposed conversion of the Hanford reactor as a matter of "prestige" or the production of a large number of kilowatt-hours from a nuclear reactor, it seems clear that such conversion would not represent any advance in nuclear technology or, in view of the necessarily arbitrary assumptions and allocations of cost which are inherent in any multipurpose plant, contribute anything very helpful to the economics of nuclear power.

Proposals to Revise AEC Organization And Procedures

THE regulatory agency with major responsibility in the atomic energy field is, of course, the U. S. Atomic Energy Commission. The AEC has been criticized on the ground that it exercises both promotional and regulatory functions. On the one hand, the AEC is responsible for the licensing and supervising of most atomic activities in this country; on the other, it has promotional responsibilities in connection with the development and furtherance of atomic energy uses.

Studies dealing with AEC regulatory procedures and organization have recently been completed by the AEC, the Joint Committee on Atomic Energy, and the University of Michigan Atomic Energy Research Project. These studies all look towards possible revisions in the organization and procedures of the AEC.

The AEC study recommends the creation of an Office of Director of Regulation reporting directly to the commission on regulatory matters as a chief step in improving the regulatory process. This recommendation has already been acted on; the chairman announced recently that the AEC has set up the office as a step in the separation at the general manager level of its regulatory function from its operational and developmental functions.

THE Michigan group has recommended a more extreme revision in the form of creation of a separate agency to exercise the regulatory function of



the AEC. An intermediate position has been taken by the Joint Committee staff, which recommends the creation of an Atomic Safety and Licensing Board within the AEC. This board would be appointed by the President and would consist of three members, two of whom would be technicians, the third an expert in administration. The board would exercise ultimate licensing authority and would recommend regulatory standards and rules.

There has also been considerable criticism of the internal—and what has on occasion been characterized as "interminable"—procedures developed by the AEC in carrying out its licensing responsibilities. This may be traceable to the fact that the commission has tended to lean over backwards in providing a multiplicity of formal hearings to avoid criticism from the courts and the congressional Joint Committee. However, the commission has recently proposed regulations specifying procedural requirements for modifications in the design or operation of facilities. Some changes would require a public hearing; some would require only AEC staff approval; still others could be made by the licensee without any AEC approval but would have to be reported to the AEC.

There seems little doubt that, whether the revisions in the organization of AEC are as drastic as the proposal of the Michigan study group or on the more temperate basis proposed by AEC, there will be, as indeed there already have been, some changes in the organization and procedures of the commission.

ONE of the major problems raised for the commission has resulted from the 1960 decision of the U. S. court of appeals for the District of Columbia which set aside an AEC order granting a provisional construction permit to the Power Reactor Development Company (PRDC) for the construction of a "fast neutron-breeder" reactor at Lagoona Beach, Michigan. The case is now on review before the U. S. Supreme Court.

The court of appeals held that the commission's findings regarding safety of operation of the reactor were not sufficiently unqualified to warrant the issuance of a construction permit under the Atomic Energy Act, and also found inadequate the commission's findings with respect to the safety of the reactor at the project site. The court appeared to hold that the AEC could not grant a construction permit until it had made definitive safety findings of the character required for an operating permit. In a strong dissenting opinion, Judge Burger expressed the view that, since the commission had issued only a *provisional* permit to build the plant, which did not include the right to operate it, there was no occasion for the court even to consider the issue of the ultimate safety of operation.

IF the Supreme Court affirms the lower court's decision, serious obstacles will confront both the AEC and sponsors of proposed nuclear projects — obstacles which may require a legislative solution. As Judge Burger declared in his dissent:

> In an area involving as much scientific uncertainty as development of nuclear energy for peaceful purposes, the commission must be permitted to proceed step by step; *i.e.*, make its prelimi-



nary finding of probable safety when the construction permit issues and reserve final approval of operations until a later date.

Siting Problems

THE question of the siting of nuclear power plants may be one of the most complex of the future problems in the nuclear power field. The court in the PRDC case took the position that Congress intended that, in the absence of compelling reasons, no reactor should be located where it might expose a large population to the possibility of a nuclear disaster. If this phase of the case is upheld, and all reactor plants must be constructed a considerable distance from load centers, with the attendant need for extensive transmission facilities, the economics of nuclear reactors will, of course, be materially burdened.

The AEC has recently issued proposed reactor site criteria guides which are designed to give industry, state and local officials, and the public some familiarity with the factors considered by the commission in judging proposed reactor sites. Some of the factors considered by the commission are population density in the area surrounding the site, the physical characteristics of the site, and the characteristics of the proposed reactor.

IN considering population density, the commission is concerned with the amount of territory from which there will be complete exclusion of population, the density of population in the area immediately surrounding the area of complete exclusion, and the distance from the reactor to the nearest border of a densely populated center, which is defined as a center containing more than 25,000 residents. The reactor site criteria are not intended to eliminate the exercise of judgment by the AEC, but rather to give some guidance to those who are concerned with the selection of reactor sites.

Regulation of Safety

CLOSELY related to the problem of siting nuclear reactors is the question of safety and the concern with providing protection to the public in the event of an accident. Interest in these questions has

been aroused by reason of the potential radiation hazards that would be involved in a serious nuclear accident. Any substantial escape of radioactivity from a reactor could, under certain circumstances, result in widespread injury to persons and property.

The reactor accident at the government's National Reactor Testing Station in Idaho in January of this year, which took the lives of three men who were working on the reactor, has served to emphasize further the safety problem. However, to put the Idaho accident in proper perspective, it should be noted that these were the first such fatalities in this country, and there was surprisingly little release of radioactive material into the atmosphere.

The Insurance Problem

ONE of the earliest problems in atomic energy was the necessity for insurance and indemnification which would provide some measure of protection for the public and for the owner of a reactor in the event of a nuclear accident. This has been solved in large measure by the organization of pools by insurance companies making available some $60 million of insurance coverage and by the Price-Anderson Act which provides for government indemnification up to $500 million in excess of the insurance coverage. The high cost of such insurance has been a matter of concern to those who are attempting to achieve economically competitive nuclear power. On the other hand, some representatives of the insurance industry are disturbed about the failure of the AEC to require licensees of small reactors to obtain the amounts of nuclear insurance coverage which they believe should be required under the particular circumstances.

Another interesting development in this field is the proposed "Uniform Nuclear Facilities Liability Act" which would assign absolute liability (liability without proof of fault) to the operator of a nuclear facility involved in an accident. The proposed act is to be submitted this summer for consideration by the National Conference of Commissioners on Uniform State Laws. There is some question whether there has been enough experience on which to base a judgment on the need for such a law. Many legal commentators believe that the courts will hold the operator strictly liable for injuries resulting from the operation of nuclear facilities without proof of negligence on the basis of existing legal precedent and question the need or desirability of recommending a uniform act at all at this time.

FINALLY, another controversial issue in this area relates to workmen's compensation for radiation injuries. Bills have been introduced in Congress which would provide for comprehensive federal workmen's compensation coverage for employee radiation injuries. The bills would not only provide federal standards for workmen's compensation, but would cover all types of radiation sources, including nuclear reactors, radioisotopes, and X-ray machines.

These bills are of special importance because they propose federal intrusion into an area that has been traditionally reserved to the states. The American Bar Association has adopted a resolution

strongly recommending state control of workmen's compensation in the atomic field and proposing that the states be encouraged to improve their workmen's compensation laws to provide adequate protection against employee radiation injuries. A good many states have already done so.

The enactment by Congress in 1959 of Public Law 86-373 permits the AEC to transfer to the states certain regulatory responsibilities for the control of by-product material, source material, and small quantities of special nuclear material. This provides an opportunity for qualifying states to assume some of the commission's regulatory authority in the safety field. Before such a transfer may be effected, the state must set up a program for the control of radiation hazards adequate to protect the public health and safety, the AEC must find that the state program is compatible with the commission's program, and an appropriate agreement must then be entered into between the state and the AEC.

The commission has sent to all state governors criteria for guiding states that may wish to adopt legislation and regulations designed to create an adequate state regulatory program. Several states have indicated an interest in taking over such regulatory responsibilities and are now working with the commission to develop programs and procedures for that purpose.

International Developments

In addition to accomplishments in this country in the atomic energy field, the United States has given a good deal of encouragement and assistance to nuclear activities abroad. Several months ago the Joint Committee on Atomic Energy released the McKinney report reviewing the international atomic policies and programs of the United States. The report indicates that, while our international policies and programs relating to the peaceful uses of atomic energy have been marked both by accomplishments and disappointments, this country holds a position of world leadership in the field of peaceful uses of atomic energy.

The McKinney report concludes that atomic power is not commercially competitive today in any country in the world and refers to the material revision in thinking about nuclear power economics abroad—as demonstrated by the cutback in the official atomic power plant construction program of the United Kingdom from the 1957 plan for the installation of five million to six million kilowatts capacity by 1966 to about five million kilowatts by 1968. It further appears that Great Britain has deferred its earlier plans for the construction of an additional five million kilowatts capacity by 1970.

It thus appears—in the cold light of the present—that the goal of nuclear energy as an economic source of electric power is still very much in the future not only in the United States, but throughout the world. This does not mean that nuclear power has lost its promise for the future. It merely means that we are now facing up to the hard test of comparative economics.



Ten Reasons for Growing Interest In Street and Highway Lighting

All across the country small communities, as well as larger cities, are contracting for modern, efficient highway lighting. The government, electric utilities, and manufacturers all share the same common interest in developing this field, as a challenge for all to work together in using the tools to light America.

By J. STANFORD SMITH*

All over the world we are witnessing a great surge of interest in street and highway lighting. This awakening takes many forms.

Cities of every size are embarking on well-planned lighting programs. This new interest in good lighting applies to the world's largest city, New York, and to the smallest hamlet. In between are hundreds of spectacular examples, including the brilliant progress being made in Chicago.

At the 1960 Illuminating Engineers Society convention, perhaps the most widely discussed paper was the one presented by Mr. deBoer, of the Netherlands, on roadway lighting. He described the high illumination levels which are becoming standard in most European countries, and in effect challenged America to match them. The IES is at work on long-awaited revisions of the American Standards Association practice, calling for higher light levels in line with the extensive illumination engineering studies being made here and abroad.

*Chairman, street lighting section, National Electrical Manufacturers Association.

GROWING INTEREST IN STREET AND HIGHWAY LIGHTING

Across the country, in scores of tiny, unincorporated communities which are little more than "wide places in the road," merchants and home owners are contracting with power suppliers for lighting installed on their private property—paid for directly by the property owners. Such a surge of public interest provides unprecedented opportunity for government officials, utility officials, and manufacturers to work together creatively to serve the public successfully and profitably.

IT is in the interest of all citizens to promote lighting that is profitable for utilities and manufacturers, as well as useful to the public. Equitable rates for electric utilities and equitable prices for manufacturers stimulate both to make the continued progress required to best serve the public. As one state utility commissioner recently put it: "It is not in the public interest to restrict utilities to minimum rates by which they can render minimum service. Rather, it is in the public interest to keep utilities strong and healthy so public needs can be met without delay." The same might well be said for the manufacturers who supply the needs of utilities and municipalities.

It becomes clear, then, that government, utilities, and manufacturers all share the same common interest of public service.

HERE are some of the reasons why street-lighting modernization provides more profitable opportunities than ever before for co-operative action by government, utility, and manufacturing representatives.

1. The Mark of Progress

FIRST and foremost, street lighting is the mark of a progressive community. It builds public spirit and welds civic pride into a real and purposeful force.

It promotes modernization. Under the stimulus of good street lighting, merchants and other property owners "spruce up, paint up, fix up." This promotes civic progress and builds added load for the power supplier as merchants increase the lighting levels of their windows and interiors, and add to their air conditioning.

High-level illumination in downtown areas is one of the surest ways to prevent the growth of blighted areas—to arrest the decay that threatens the heart of many communities. Downtown areas must follow the lead of such places as State street in Chicago if they are to survive the onslaught of bright and gay suburban shopping centers.

Good lighting reduces crime. In a carefully controlled study of a five-precinct area, New York city found that adequate lighting reduced crime by 49 per cent! And, in Chattanooga, relighting of one blighted area cut crime 90 per cent! There are many other examples.

THE essential point is that good lighting is a form of automation in law enforcement. One police commissioner says that three high-wattage street lights in densely populated areas are equal to one policeman in deterring crime—and at a tiny fraction of the patrolman's salary.

Speaking bluntly, good lighting is good politics. Most public officials know that lighting gets votes, and some have learned to their sorrow that with an awakened

public, the lack of lighting can cost votes.

Finally, good lighting is the most prominent symbol of the electrical way of life. The public, urged by utilities to "Live Better . . . Electrically" in their own homes, has every right to expect the power supplier to practice what he preaches. It is just plain good business and good public relations for both municipalities and power suppliers. Lighting is one service which every citizen can see, enjoy, and appreciate.

2. A Safety Essential

STREET and highway lighting is essential to safety. The nation's nighttime accident rate is criminal. Last year, nearly 40,000 Americans died in motor vehicle accidents; another 1.4 million were injured. In addition, there was an economic loss of $6.2 billion! (Figure 1, this page.) Fifty-four per cent of these accidents occurred at night, when less than 25 per cent of traffic is on the road. Adequate street and highway lighting in heavy traffic and danger areas can reduce nighttime accidents by as much as two-thirds—saving more than 10,000 lives a year—preventing 350,000 injuries and nearly $2 billion in property damage.

We would not think of building new highways without adequate shoulders, divider strips, guard rails, direction signs, and even fencing. There is just as great a need for lighting of the "Ten Danger Areas"—the areas where the motorist must be able to see the road and other traffic in order to make the right decisions safely.

If not properly lighted in these ten danger areas, our modern highways can become high-speed death traps where "legal" speed limits for nighttime driving lure motorists into overdriving their headlights by 10-20 miles per hour to their own destruction or sorrow.

How much does such lighting cost? Less than one per cent of the total cost of the highway. It costs less to operate and maintain than it costs to paint the white lines and mow the right of way. In other words, in the federal interstate program instead of building 43,000 miles of unlighted highways, the nation can have a more productive, lifesaving investment by building 42,500 miles of highways with adequate lighting for its danger and heavy traffic areas.

3. Profitable Load

FROM the utility's point of view, lighting can build profitable, off-peak load. In 36 states, the load peak is now in the daytime during summer (Figure 2, page 840). Lighting is a nonfluctuating load which fills the night "valley." Its load factor is a high 46 per cent. Its utilization factor is unity, with no reserve capacity required. Diversity factor is also unity—load comes on in the same magnitude seven days a week, all seasons. Its power

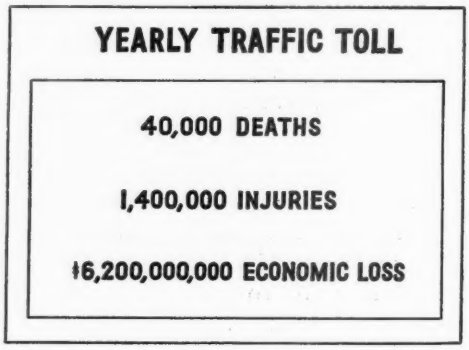


FIGURE 1

factor is 90 to 100 per cent with modern equipment (Figure 3, page 840).

4. New Light Sources

NEW light sources offer opportunities of more light per dollar for users and at the same time new rates that provide an equitable return to power suppliers. Increased use of mercury and fluorescent sources opens up great possibilities for adjusting rates rather than continuing with marginal patterns that may be based on economics and technical conditions of twenty or thirty years ago. The spectacular increases in lumen output per watt possible with vapor sources provide a rare opportunity for "creative rate making." For instance, filament units give about 20 lumens per watt (Figure 4, page 840). Mercury units give 50 lumens per watt—two and one-half times as much. And, fluorescent units go as high as 70 lumens per watt—three and one-half times as much.

The somewhat higher initial cost of mercury or fluorescent luminaires can work to the utilities' advantage, too, since a reasonable increase in investment broadens the base for their return and helps them to get out from under depression-born low rates based on the street-lighting equipment then available.

5. New Product Developments

THE revolutionary product progress of the last few years makes it easier to install and maintain street-lighting service. Unitized equipments—such as fluorescent luminaires and "power pack" mercury units with built-in ballasts, capacitors, wiring, and controls—cut both installation and maintenance costs. Such designs sharply reduce labor costs for installing, mounting, and connecting luminaires and auxiliaries, and eliminate the need for transformer bases or other "extras."

Longer lamp life has also become a major factor in reducing maintenance costs. Fluorescent and mercury lamps now last two to three years without replacement.

Development of dependable, economical cadmium-sulphide photoelectric controls has spurred the trend to individually controlled multiple circuits. Multiple circuits offer many cost and operating advantages, including the savings of using existing, low-voltage secondary circuits.

6. Exceptional Price Values in Street-lighting Equipment

AT the present low price levels, street-lighting equipment represents an exceptional value. Consider what has happened in the street-lighting industry since 1939 (Figure 5, page 840):

Hourly wage rates—up 228 per cent
Cost of materials—up 150 per cent
Prices of machinery—up 119 per cent
Outdoor lighting prices—up only 79 per cent on a wattage basis

As a result, the cost per lumen of street-lighting luminaires has actually gone down 20 per cent!

And, look what has happened to the prices of other things utilities buy (Figure 6, page 840):

Coal—up 130 per cent per ton
Copper—up 197 per cent per pound
Steel—up 194 per cent per ton

And, the cost of things cities buy (Figure 7, page 840):

Roadways—up 250 per cent per mile

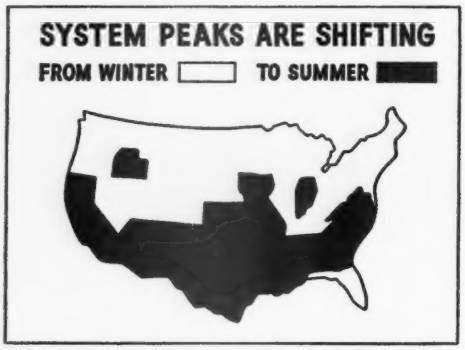


FIGURE 2

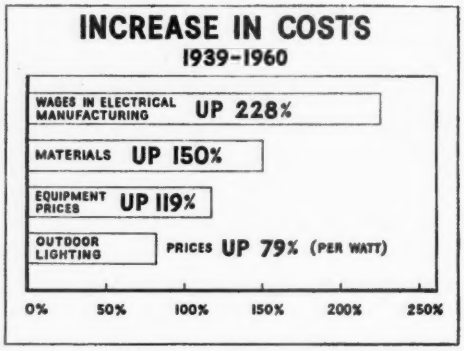


FIGURE 5

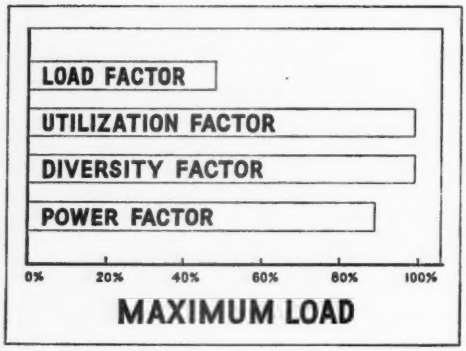


FIGURE 3

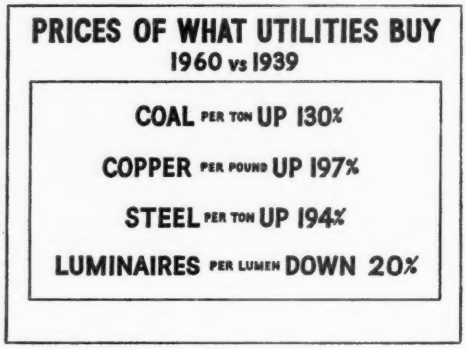


FIGURE 6

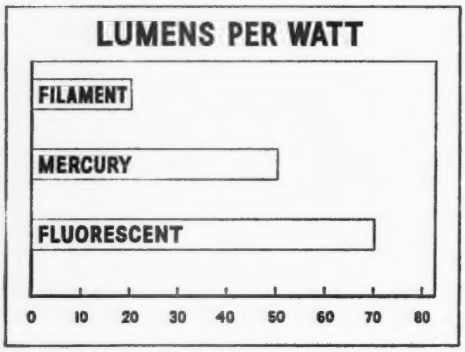


FIGURE 4

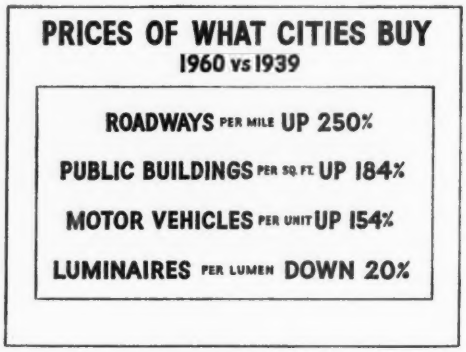


FIGURE 7

Buildings—up 184 per cent per square foot

Motor vehicles—up 154 per cent per unit

In contrast, street-lighting luminaires are down 20 per cent per lumen. One utility has told us that it can profitably put 60 per cent more light on the street today than it did in 1939.

In the face of recent increases in the cost of wages, glass, aluminum, and other materials, it is hard to say how long these low market levels can continue.

7. Higher Light Levels

THE trend to higher light levels makes street lighting more useful to the public and more profitable to the utilities. This is simple economics: The fixed charges per lumen go down sharply with more lumens per lamp and with more luminaires per mile. As use of more luminaires and larger lamps goes up in an area, unit operating expenses come down, and the return on fixed investment goes up. In the past thirty years the recommended level of illumination for various office jobs has increased seven to ten times. There is every reason to expect similar acceleration of the trend to higher levels of illumination in roadway lighting.

8. Demand for Residential Lighting

BETTER residential lighting is not a new trend, but one which has been sharply underscored by the shift of population to the suburbs and the growth of rural areas. Merchants downtown and in shopping centers have long known that good lighting is just plain good business. But their patrons—your public—are getting tired of driving out of the "sun" of the business district or shopping center into a suburban "cave of darkness." They are demanding good lighting for their own convenience and safety, and they propose to get it one way or another.

Thoughtful, well-planned communities are insisting that builders and developers provide good street lighting in the same way as they must provide roadways, curbs, water, and sewage disposal.

There is no excuse for doing otherwise. Modern equipment with precise light control eliminates the old complaint about "light in the bedroom window." And here again, the low maintenance costs, high light output, and long life of modern luminaires and lamps can make residential lighting just as profitable as any other service.

9. Growth of "Private Lighting"

IN unincorporated areas, power suppliers are finding and serving a vast new market for "private lighting"—lighting installed on private property for a small but profitable monthly fee. Scores of investor-owned utilities and rural electric co-operatives in every part of the country are embarked on this new approach to providing lighting equipment for farmyards, motels, roadside stands, suburban dwellings, used car lots, church yards, schoolyards, and all kinds of commercial enterprises. These utilities have found that "private lighting" is a tremendous load and revenue-building opportunity, as well as a truly popular customer service.

10. Public Demand

UNDERSCORING all these factors is a ground swell of public consciousness of the importance of good lighting to all citizens, and their determination to have it. More and more, the public is realizing that it is paying for lighting whether it gets it or not. In fact—considering the value of lighting for crime prevention, accident reduction, and convenience—it pays more in lives and dollars if it does not have good lighting!

Sensing this public interest, *Reader's Digest* and *Coronet*—two of the most widely read magazines in the world—have recently devoted feature articles to street lighting and what its presence—or absence—can mean to a community. *Reader's Digest* has followed up with a program of national awards to well-lighted cities. And the General Federation of Women's Clubs, embracing 17,000 civic-minded clubs all over the United States, has adopted better street lighting as a major program for 1961. Such activity has stimulated news reports and editorials in newspapers and magazines all across the country, as well as TV and radio shows.

Never in its history has the outdoor lighting industry enjoyed—and been challenged by—such widespread and purposeful public support.

WORKING together, cities, utilities, and manufacturers have made considerable progress. But reckoning the tremendous job yet to be done, there is no reason for any of us to rest on our laurels! For despite all our accomplishments, we have lighted only 7 per cent of our streets to the minimum recommendations of the ASA Code—and probably only one per cent would meet European standards.

Yet I am optimistic and confident. We have the opportunity truly to serve America; the challenge is to continue to work together for the good of all. We have the tools to light America, and the impetus of public demand to get on with it!



Jefferson on Public Thrift

"I PLACE economy among the first and most important virtues, and the public debt as the greatest of dangers to be feared. To preserve our independence, we must not let our rulers load us with perpetual debt. We must make our choice between economy and liberty, or profusion and servitude. If we run into such debts, we must be taxed in our meat and drink, in our necessities and in our comforts, in our labors and in our amusements. If we can prevent the government from wasting the labors of the people under the pretense of caring for them, they will be happy."

—THOMAS JEFFERSON,
Third President of the United States.

Financial News and Comment

By OWEN ELY



High Lights of 1960 Stockholders' Reports of Electric Utilities

In the discussion of sales and promotional activities, many 1960 reports to stockholders comment on *electric house heating* as a seasonal offset to the heavy air-conditioning load in summer. Unfortunately, very few companies give any figures on installation and operating costs. In any event, electric heating is increasing rapidly, according to the available data. American Electric Power reports that there are now 35 makers of electric heat pumps; and at least 12 companies have begun to manufacture electric warm air furnaces. There are about 100 different suppliers of the embedded heating cable and baseboard types of installations, which represent 98 per cent of the direct electric heating systems installed to date. The possibilities of off-peak storage of heat in concrete floors or water storage tanks (for warehouses, factories, etc.) is being explored.

Allegheny Power system, in about the same type area as American Electric, reports that resistance-type heating is more popular than the heat pump. While a majority of heating installations have been in new homes, conversion of existing homes is gaining. The system had 839 new installations of both types in 1960, bringing the total to 2,244. Lower rates are now in effect and other inducements are being made so that a substantial further increase is expected in 1961. Both Allegheny and American report increased interest in electric heating by schools and churches; American has 41 schools completely heated by electricity and 24 partially.

Atlantic City Electric reports that electric house heating was installed in 565 additional homes, while commercial and industrial customers have also accepted electric heating for many diversified applications. Detroit Edison continues to promote electric heating by a variety of advertising and promotional methods. Auxiliary electric heating equipment was added to 418 homes last year, while 244 new homes had complete electric heating and 168 were modernized.

Kansas Power & Light reports that

Department Index

	Page
High Lights of 1960 Stockholders' Reports of Electric Utilities	843
Chart—Trends of Utility Stock Groups 1942-61	845
Table—Current Yield Yardsticks	847
Table—Financial Data on Electric Utility Stocks	849, 850, 851

there were over twice as many electrically heated home installations in 1960 as in 1959, despite some decline in home construction; commercial installations increased threefold, with schools most active.

Kansas City Power & Light put into effect a seasonal space-heating rate step of 1.3 cents per kilowatt-hour; 71 all-electric homes were added, with supplemental electric heating in 64 others. Iowa Electric Light & Power reports 251 electric heating jobs in 1960 compared with 173 in the previous year. A model "open house" was visited by 25,000 people.

Florida is one of the best states for electric heating, and Florida Power Corporation has pioneered in this field. The company's report states: "Since the inception of the Medallion Home Program two years ago, 5,409 homes have earned the emblem and last year 3,012 were certified for a 49 per cent increase over the previous year." (Most Medallion homes have electric heating.) Tampa Electric's report states that its heat pump promotion program, originated in 1956 and expanded in each ensuing year, resulted in the installation of 820 residential heat pump systems in 1960, an increase of 42 per cent over 1959.

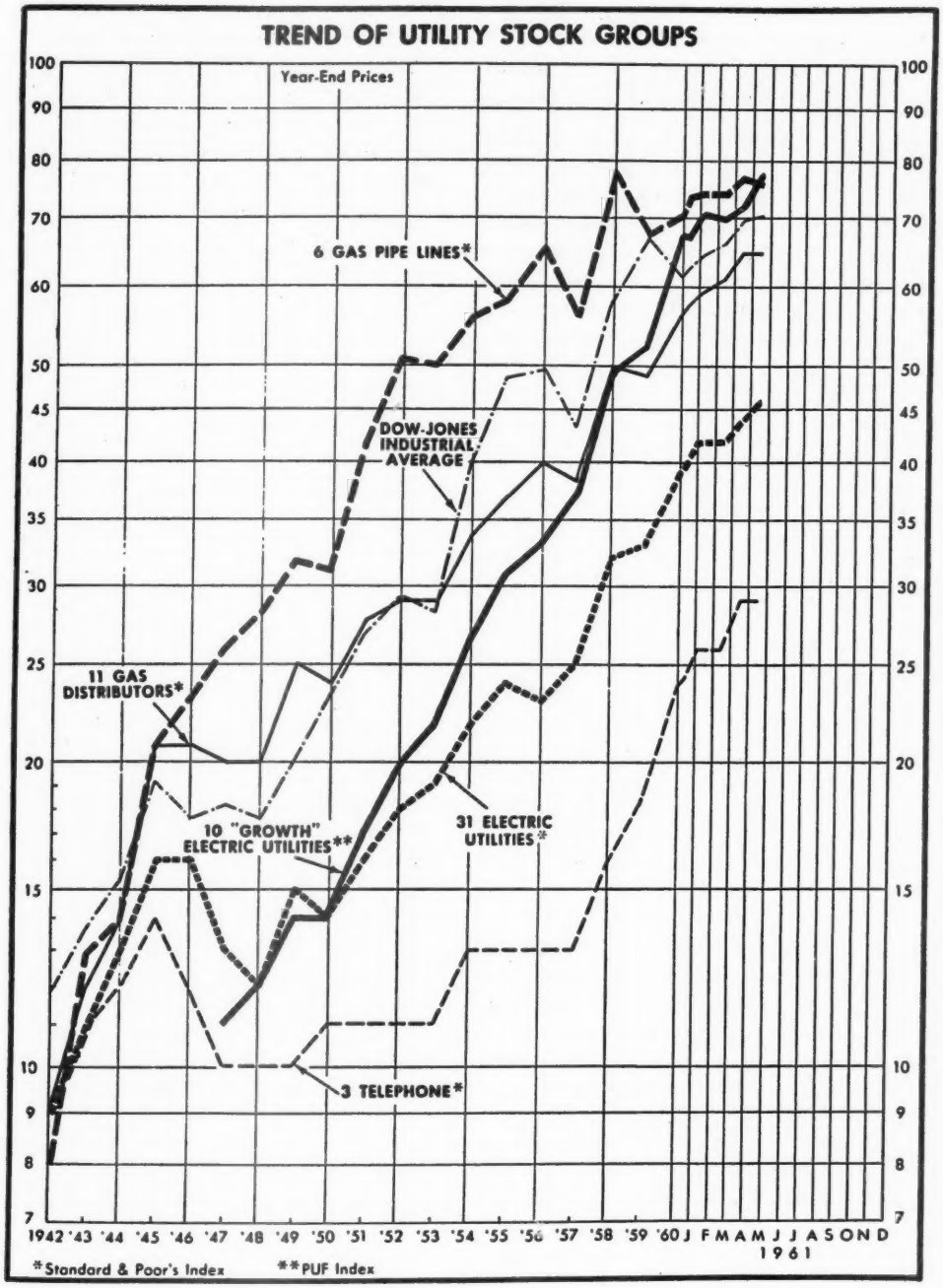
Out in the western desert areas electric house heating is also doing well. Southern Nevada Power's report states that "Sales Soar in All-electric Homes" and its average residential usage has climbed to 11,467 kilowatt-hours. The company's service area is believed to contain a heavier concentration of electric heat pumps than any other similar sized area in the country. The report states: "A survey of heat pump owners taken in 1960 showed that an overwhelming majority were completely satisfied with the performance and economy of heat pump air conditioning."

Even in colder climates there are encouraging reports. Wisconsin Power & Light states that even though winters are sometimes severe, a 1,200-square-foot home with proper insulation can be heated electrically for only about $175 to $225 per annum; there are now nearly 100 electrically heated homes in the area. New England Gas & Electric set up a two cents per kilowatt-hour rate for most of its territory, which is low for that area. Boston Edison also has a new promotional rate and is investigating a thermo-water storage system which may be especially applicable to existing homes. Even Central Vermont Public Service, in one of the coldest parts of the nation, has introduced a promotional rate, and reports the first electrically heated high school being built at Brandon. Installations also have been made in new and old homes, commercial buildings, motels, ski lodges—and one is planned for a new industrial building.

Appliances. Duquesne Light's report pictures a "total electric home for better living" which illustrates some 37 electric appliances and gadgets—including such luxuries as an electric snow melting system in the driveway, an electric lawn mower, electric hedge shear, etc.

Allegheny Power reports that, in a relatively poor year for appliance sales generally, "our area's new installations of the three major appliances were about the same as in 1959. At the year end, 42 per cent of our residential customers had electric ranges, 26 per cent had electric clothes dryers, and 22 per cent had electric water heaters. In each case, these market saturations for major appliances are higher than the national average."

Many companies have been promoting


TREND OF UTILITY STOCK GROUPS
Year-End Prices
6 GAS PIPE LINES*
DOW-JONES INDUSTRIAL AVERAGE
11 GAS DISTRIBUTORS*
10 "GROWTH" ELECTRIC UTILITIES**
31 ELECTRIC UTILITIES*
3 TELEPHONE*
100
90
80
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1942 '43 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60 J F M A M J J A S O N D
1961
*Standard & Poor's Index
**PUF Index

all-electric homes, but Baltimore Gas & Electric put a "Better Living Carnival" on the road which was visited by 73,000 people and received nation-wide publicity.

AREA DEVELOPMENT is to industrial sales what appliances are to residential. Many utilities report on their efforts, or those of local business organizations, to build industrial parks and attract industrial customers. Atlantic City Electric's area grows twice as fast as the national average and the company devotes a page of its report to describing new industries, motels, etc. Allegheny Power reports that area development work added 71 new industrial customers, while 15 nationally known companies are expanding their plants in the area. American Electric Power's report has a four-page spread on area development and promotional work. Minnesota Power & Light devotes two pages to area development and another to "business climate." The development of new industries is described by New England Electric System under the heading "The New New England." Boston Edison also discusses the heavy concentration of electronics and research in New England—100 companies and 35 labs; in fact, electronics is now the second most important industry.

The program of "urban renewal" in Boston is described. Hartford Electric Light discusses the redevelopment program for the city of Hartford. Duquesne Light describes the redevelopment program in Pittsburgh. Houston Lighting pictures the big building boom in its city, with the skyline "growing up, up, up." Incidentally, municipal lighting is getting new attention. Arkansas Missouri Power mentions that it has initiated a special rate for mercury vapor street lights and several communities have begun modernizing street lights.

GROWTH. Many utilities are proud of their growth, particularly where it is above average. Tampa Electric presents three charts showing that its kilowatt-hour sales have grown much faster than the national average in the past five years.

Southern Company presents an interesting "log" chart showing the yearly energy supply for the period 1927-63 (1961-63 being estimated); the annual growth rate for 1927-60 was 8.19 per cent, compounded. Central Louisiana Electric, looking still further into the future, estimates that electric output of the system in 1970 will be about three times that of 1960 and in 1980 about ten times that of 1960; this seems substantially ahead of industry estimates.

Consolidated Edison's report gives a two-and-a-half-page spread depicting some of the big new buildings in New York city and the details of their future demands for electricity and steam. Orange & Rockland, perhaps the only "rapid growth" utility in New York state, devotes several pages of its report to discussion of fast suburban growth in its area, new highways and industrial parks, the many research installations expected to move to Sterling Forest, etc.

TURNING to the subject of *operating efficiency* the increasing trend toward the development of *power pools* and *grids* is of special interest. Atlantic City Electric has completed an overhead crossing of the Delaware river for a major interconnection with Philadelphia Electric and Public Service Electric & Gas, which together with other companies form the largest power pool in the United States. Pennsylvania Power & Light also devotes more than two pages —with a beautiful colored map—to a description of this pool. Iowa Public

Service has a two-page spread on the Iowa grid now being developed.

In Florida, representatives of the three principal electric utilities—Florida Power & Light, Florida Power Corporation, and Tampa Electric—formed a committee in 1959 to develop joint economies. Some gains in operating efficiency have been obtained by co-ordinating the scheduling of generating equipment outages for maintenance. A subcommittee on system planning has been formed and a series of studies are in progress. The first of these, using data estimated for 1970, has been completed and is now being analyzed. The most modern digital and analog computers are being used for these studies, allowing the complete power system to be built mathematically and its performance tested accurately.

COMPUTERS are being increasingly adopted to speed accounting and engineering work. Atlantic City Electric's Accounting and Data Processing Center, dedicated last June, is probably the most advanced facility of its kind in the industry. The attractive, air-conditioned building was designed for efficient flow of work but has also won architectural awards. The RCA 501 fully transistorized computer (and related electronic facilities) now process over 2.5 million bills a year, using high-speed magnetic tape. Studies are under way to extend the use of this versatile electronic equipment to other phases of accounting and to engineering.

Duke Power has also set up a "Datacenter," consisting of an IBM 7070 computer and associated equipment, to handle customer billing and records. The Datacenter will also be used for load-flow studies, power plant performance analysis, and other technical and research work.

ARTIFICIAL HYDRO POWER. Union Electric is the first utility in the U. S. to build an artificial "hydro" property, called Taum Sauk and located in the Ozark highlands. This is a $50 million project to provide 350,000 kilowatts by 1963. It is a "pumped storage plant" designed to recirculate a captive supply of water over and over again. During nighttime and week-end hours of low power use by customers, water will be pumped from a lower to an upper reservoir, utilizing power from efficient steam-generating units which otherwise would be idle. Then, during daytime periods of high power demand, when more expensive generating units would be required to serve this peak load, the water will be released from the upper reservoir

CURRENT YIELD YARDSTICKS
(Standard & Poor's Indexes)

	May 17, 1961	*1961 Range*		*1960 Range*	
		High	*Low*	*High*	*Low*
Utility Bonds—A1+	4.42%	4.50%	4.33%	4.72%	4.32%
—A1	4.51	4.54	4.38	4.73	4.36
—A	4.62	4.67	4.56	4.86	4.49
—B1+	4.63	4.74	4.48	5.16	4.56
Preferred Stocks*	4.61	4.78	4.61	4.88	4.57
Utility Common Stocks	3.19	3.62	3.19	4.11	3.61
Yield Spread: A1+ Bonds Exceeded Common Stocks	1.23	0.88	1.14	0.61	0.71

*Twelve industrial and two utility issues (high-grade).

for the return trip down the tunnel, through the pump-turbines now operating in reverse to generate electricity, and to the lower reservoir.

The two pump-turbogenerators will be the most powerful hydroelectric units built to date, handling five million tons of water in each direction during the day. The substantially lower kilowatt investment in Taum Sauk, and the longer life of the plant as compared with a new steam-generating plant, will result in important savings in capital costs, and operating costs will also be low.

ATOMIC POWER AND FUSION. Almost all the reports to stockholders contain progress reports on atomic power, but when these are all boiled down there is comparatively little to report. We already have commented on the long-term plans of ESADA (Empire State Atomic Development Association) to build a very large atomic plant in New York. Pacific Gas and Electric reports that construction is in progress on the 60,000-kilowatt boiling-water reactor at Humboldt Bay, scheduled for service in 1962; this reactor will pioneer in the "pressure suppression containment" principle, which is expected to reduce cost of plant and increase safety. The plant is expected to be competitive by 1965. Interstate Power's report describes the progress of the 66,000-kilowatt Pathfinder plant being built in South Dakota. Consumers Power reports progress with its 50,000-kilowatt nuclear plant, to be ready in late 1962. Detroit Edison devotes a page to the Enrico Fermi plant and the safety precautions at that plant; a decision by the U. S. Supreme Court as to whether these precautions are adequate is expected soon. New England Gas & Electric reports that the Yankee Atomic Reactor has been performing very satisfactorily, near its expected maximum capacity. Philadelphia Electric describes the 40,000-kilowatt Peachbottom station, which is expected to generate steam at high pressure and temperature.

There is little comment on the possibilities of *fusion*, although this process (if developed) would probably be far more efficient than the present plants operating by fission. Texas Utilities reports that the studies of fusion being carried on by General Dynamics at San Diego warrant continued interest and support by the associated utility group, and the initial four-year research program is being extended for another four-year term on a year-to-year basis.

RATES AND REGULATION. This topic can be covered by areas. In Ohio, Toledo Edison devotes portions of its report to its difficulties in obtaining needed rate increases. Columbus & Southern Ohio was successful in obtaining an increase of $3.6 million in the city of Columbus. Cincinnati Gas & Electric describes its rate case, which has now been appealed from the commission to the courts; the commission ordered use of "flow through" and if this is upheld by the courts, other Ohio utilities will doubtless follow suit in adopting it.

California is another state where rate developments are complicated by "flow through." Southern California Edison explains that it adopted flow through under orders of the California commission although it preferred to normalize, and this contributed 58 cents of the 77-cent increase in earnings in 1960. Pacific Gas and Electric was granted an increase of $7.3 million last August to offset the $10 million increase in gas rates by its supplier, El Paso Natural Gas; the commission is considering the remaining part. San Diego Gas & Electric is also asking for higher gas rates to offset increased

rates charged by suppliers. (It would be much simpler, in our opinion, if the commission would allow automatic fuel adjustments.)

IN Texas the rising field cost of gas is also affecting fuel costs, hence the Texas companies have been installing the adjustment clauses. Texas Utilities has revised its rate schedules to include both fuel and an "all commodities index" clauses. The subsidiaries received approvals of the new schedules in Dallas and Fort Worth and in many other cities and towns, effective early in 1961. In Arizona, Arizona Public Service is seeking adjustment clauses for both electric and gas rates to take care of changes in taxes. The company's new residential gas rate schedule includes (for the first time in industry history) a weather-adjuster clause which will tend to normalize the net income of the company as it is affected by variations in residential gas-heating load arising from weather extremes during the winter months.

In Pennsylvania the commission has been reviewing the earnings of utilities in the state and in some cases rate cuts have been ordered. West Penn Power cut its rates $500,000 following talks with the commission. Philadelphia Electric reports, however, that its rate of return was found "not excessive" by the commission.

Among the few increases obtained, Public Service of Indiana reports a rate increase of $5 million, nearly all the amount requested. Public Service of Colorado was granted a $4.4 million increase based on a return of 6.35 per cent, including .20 per cent for attrition, but flow through was adopted.

IN Wisconsin there seems to have been a little pressure for rate cuts. Wisconsin Power & Light describes a $1.2 million cut put into effect voluntarily which "will enable us to promote the sale of electric power more aggressively and will encourage customers to use electricity in preference to other fuels."

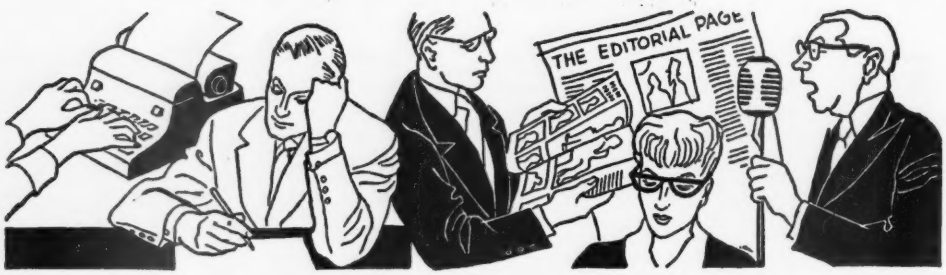
FINANCIAL DATA ON ELECTRIC UTILITY STOCKS

Approx. Rev. (Mill.)			*5/16/61 Price About*	*Dividend Rate*	*Approx. Yield*	*Recent Share Earns.*	*% Incr. in Share Earnings*		*Price-Earn. Ratio*	*Div. Pay-out*	*Approx. Book Value*
							Recent	*5-yr. Avg.*			
$159	S	Allegheny Power System ..	46	$1.70	3.7%	$2.36Ma	D2%	3%	19.5	72%	$18
338	S	American Elec. Power	66	1.88c	2.5	2.43Ap	—	5	27.2	74	24
74	O	Arizona Pub. Service	38	.72	1.9	*1.03De	* 7	* 8	*36.9	70	19
14	O	Arkansas Mo. Power	26	1.08	4.2	1.60Ma	22	5	16.3	68	11
40	S	Atlantic City Elec.	48	1.20	2.5	*1.61Ma	*10	* 9	*29.8	75	12
175	S	Baltimore G. & E.	32	1.00	3.1	1.47Ma	4	8	21.8	68	13
9	O	Bangor Hydro-Elec.	20	.80	4.0	1.12Ma	5	6	17.9	71	30
7	O	Black Hills P. & L.	39	1.60	4.1	2.63Ja	2	3	14.8	61	21
124	S	Boston Edison	74	3.00	4.1	4.11Ma	8	4	18.0	73	52
34	A	Calif. Elec. Power	23	.84	3.7	*1.12Ma	*D2	* 3	*20.5	75	12
25	O	Calif. Oreg. Power	51	1.60	3.1	*2.15F	*20	*	*24.2	74	27
11	O	Calif. Pac. Util.	26	.90	3.5	1.24Ma	D12	1	21.0	73	13
82	S	Carolina P. & L.	57	1.48	2.6	2.24Ap	D3	5	25.4	66	21
37	S	Central Hudson G. & E. ..	33	1.00	3.0	*1.47Ma	* 4	* 8	*22.4	68	14
27	O	Central Illinois E. & G. ...	50	1.44	2.9	2.46Ma	10	7	20.3	58	16
45	S	Cent. Ill. Light	46	1.52	3.3	1.85Ap	D28	4	24.9	82	19
63	S	Cent. Illinois P. S.	65	2.12	3.3	3.03Ap	6	5	21.5	70	21
22	O	Central Louisiana Elec. ...	32	1.00	3.1	1.35Ma	13	7	23.7	74	11
44	O	Cent. Maine Power	32	1.40	4.4	*2.04Ap	*11	*	*15.7	69	25
173	S	Cent. & South West	46	1.02	2.2	1.45Ma	6	7	31.7	70	9
13	O	Cent. Vermont P. S.	23	1.08	4.7	*1.32Ma	*66	* 2	*17.4	82	14
153	S	Cincinnati G. & E.	45	1.50	3.3	2.23Ma	4	3	20.2	67	16

Approx. Rev. (Mill.)		(Continued)	5/16/61 Price About	Dividend Rate	Approx. Yield	Recent Share Earns.	% Incr. in Share Earnings Recent	5-yr. Avg.	Price-Earn. Ratio	Div. Payout	Approx. Book Value
10	O	Citizens Util. "B"	20	.60	3.0	.81De	14	8	24.7	74	6
136	S	Cleve. Elec. Illum.	58	1.80	3.1	2.97De	1	4	19.5	61	25
8	O	Colo. Cent. Power	42	.75	1.8	1.35Ma	20	10	31.1	56	12
57	S	Columbus & S. O. E.	63	1.80	2.9	2.98Ma	12	6	21.1	60	25
469	S	Commonwealth Edison	78	2.00h	5.0h	3.92Ma	8	8	19.9	51	35
17	A	Community P. S.	34	1.00	2.9	1.54Ma	2	5	22.1	65	13
89	O	Conn. Lt. & Power	30	1.20	4.0	*1.47Ap	—	* 7	*20.4	81	15
656	S	Consol. Edison	82	3.00	3.7	*3.78Ma	*D1	* 5	*21.7	79	50
281	S	Consumers Power	70	2.60	3.7	3.42Ma	D10	2	20.5	76	36
96	S	Dayton P. & L.	70	2.40	3.4	3.34De	4	—	21.0	72	31
55	S	Delaware P. & L.	54	1.20	2.2	1.68Ma	4	7	32.1	71	14
279	S	Detroit Edison	55	2.20	4.0	2.66Ma	9	2	20.7	83	28
167	A	Duke Power	57	1.60	2.8	2.19Ma	—	7	26.0	73	22
105	S	Duquesne Light	29	1.18	4.1	*1.51Ma	* 3	* 5	*19.2	78	10
38	O	East. Util. Assoc.	44	2.20	5.0	2.58F	D12	4	17.1	85	26
3	O	Edison Sault Elec.	18	.90	5.0	1.12Ma	D11	8	16.1	80	9
19	O	El Paso Electric	60	1.24	2.1	1.72Ma	4	8	34.9	72	12
13	S	Empire Dist. Elec.	41	1.52	3.7	2.02Ma	7	7	20.3	75	17
68	S	Florida Power Corp.	47	.88	1.9	1.36Ma	15	11	34.5	65	11
173	S	Florida P. & L.	70	1.00	1.4	2.09Ma	4	15	33.5	48	17
4	O	Florida Pub. Util.	29	.72d	2.5	1.32Ma	D1	7	22.0	55	11
205	S	General Pub. Util.	30	1.16	3.9	*1.61De	* 2	* 3	*18.6	72	15
7	O	Green Mt. Power	25	1.10	4.4	1.42Ma	9	4	17.6	77	13
86	S	Gulf States Util.	39	1.00	2.6	1.26Ma	D10	5	31.0	79	13
54	A	Hartford Electric	69	3.00	4.3	*3.75Ma	* 2	NC	*18.4	80	43
31	O	Hawaiian Electric	85	2.50	2.9	3.68De	6	5	23.1	68	37
116	S	Houston L. & P.	108	1.60	1.5	3.28Ap	6	5	32.9	49	24
37	S	Idaho Power	63	1.80	2.9	2.77Ma	13	6	22.7	65	29
110	S	Illinois Power	72	2.20	3.1	2.95Ma	6	11	24.4	75	20
56	S	Indianapolis P. & L.	62	1.90	3.1	2.70Ma	7	7	23.0	70	19
34	S	Interstate Power	24	.95	4.0	1.20Ma	3	4	20.0	79	9
53	S	Iowa Elec. L. & P.	53	1.80	3.4	2.65Ap	2	5	20.0	68	21
51	S	Iowa-Illinois G. & E.	48	1.90	4.0	2.57Ma	D6	2	18.7	74	20
51	S	Iowa P. & L.	42	1.60	3.8	2.13Ma	D8	4	19.7	75	20
42	O	Iowa Public Service	23	.88	3.8	1.35Ma	12	5	17.0	65	11
17	O	Iowa Southern Util.	34	1.48	4.4	2.06Ma	D4	4	16.5	72	21
68	S	Kansas City P. & L.	69	2.32	3.4	3.32Ma	5	6	20.8	70	31
37	S	Kansas G. & E.	60	1.68	2.8	2.82Ap	3	8	21.3	60	23
57	S	Kansas P. & L.	46	1.48	3.2	2.43Ma	2	7	19.0	61	19
49	O	Kentucky Util.	44	1.60	3.6	2.72Ma	—	6	16.2	59	22
8	O	Lake Superior D. P.	27	1.28	4.7	1.83Ma	7	4	14.8	70	18
145	S	Long Island Ltg.	58	1.50	2.6	*2.21Ma	* 6	* 8	*26.2	68	20
71	S	Louisville G. & E.	60	1.52	2.5	2.66Ma	2	8	22.6	57	22
13	O	Madison G. & E.	35	1.00	2.9	2.09Ma	11	3	16.7	48	21
5	A	Maine Pub. Service	27	1.24	4.6	1.44Ma	D4	4	18.7	86	14
8	O	Michigan G. & E.	87	2.00e	5.6e	5.54Ma	5	8	15.7	36	29
215	S	Middle South Util.	37	1.05	2.8	1.53Ma	9	9	24.2	69	14
35	S	Minn. P. & L.	40	1.60	4.0	2.51Ap	13	4	15.6	64	21
16	S	Missouri P. S.	24	.72f	5.0f	1.06Ma	D9	5	22.6	68	8
9	O	Missouri Util. (L)	25	1.08	4.3	1.42Ma	26	2	17.6	76	19
49	S	Montana Power	34	1.12	3.3	*1.50Ma	*13	* 8	*22.7	75	10
180	S	New England Elec.	24	1.08	4.5	1.33Ma	D1	2	18.0	81	15
55	O	New England G. & E.	33	1.24	3.8	1.85Ma	8	8	17.8	67	18
110	S	N. Y. State E. & G.	36	1.30	3.6	*1.97Ma	*11	* 8	*18.3	66	19
299	S	Niagara Mohawk Power	44	1.80	4.1	*2.29Ma	* 6	—	*19.2	79	23
124	O	Northern Indiana P. S.	43	1.20	2.8	1.76Ma	9	4	24.4	68	28
183	S	Northern States Power	33	1.18	3.6	1.50Ma	5	5	22.0	79	12
13	O	Northwestern P. S.	27	1.10	4.1	1.67Ma	—	5	16.2	66	13
160	S	Ohio Edison	39	1.48	3.8	2.12Ap	3	4	18.4	70	17
62	S	Oklahoma G. & E	39	1.20	3.1	1.50Ma	5	5	26.0	80	11
31	S	Orange & Rockland Util.	59	1.20	2.0	*1.72Ma	* 4	*11	*34.3	70	14
20	O	Otter Tail Power	39	1.80	4.6	2.35Ma	D3	1	16.6	75	25
648	S	Pacific G. & E.	82	2.80	3.4	4.30Ma	13	5	19.1	65	42
63	O	Pacific P. & L.	47	1.80	3.8	*2.35F	*23	* 6	*20.0	77	20
142	S	Penn P. & L.	31	1.25	4.0	1.71Ma	D3	3	18.1	73	13

Approx. Rev. (Mill.)		(Continued)	5/16/61 Price About	Dividend Rate	Approx. Yield	Recent Share Earns.	% Incr. in Share Earnings Recent	5-yr. Avg.	Price-Earn. Ratio	Div. Payout	Approx. Book Value
273	S	Phila. Electric	34	1.20	3.5	1.46Ma	—	4	23.3	82	28
45	O	Portland Gen. Elec.	44	1.32	3.0	2.15Ap	14	5	20.5	61	19
89	S	Potomac Elec. Power	45	1.44	3.0	*2.00Ma	* 6	* 6	*22.5	72	20
113	S	Pub. Serv. of Colo.	88	2.10n	2.4	3.24Ma	19	5	27.2	65	26
394	S	Pub. Serv. E. & G.	55	2.00	3.6	*3.01Ma	*22	* 3	*18.3	67	28
92	S	Pub. Serv. of Ind.	58	2.20	3.8	2.54Ma	D7	2	22.8	87	28
35	O	Pub. Serv. of N. H.	23	1.04	4.5	1.40Ap	D1	2	16.4	74	14
20	O	Pub. Serv. of N. M.	49	1.00	2.0	1.59Ma	6	11	30.8	64	13
37	S	Puget Sound P. & L.	41	1.56	3.8	1.94Ma	D8	8	21.1	80	23
76	S	Rochester G. & E.	49	1.80b	6.7b	*3.00Ma	*D5	* 8	*16.3	60	32
11	S	St. Joseph L. & P.	37	1.60	4.3	2.18Ma	D5	8	16.9	73	19
81	S	San Diego G. & E.	34	1.20	3.5	1.69Ma	D13	9	20.1	71	19
12	O	Savannah E. & P.	33	1.12	3.4	1.33De	6	4	24.8	84	14
14	O	Sierra Pacific Pr.	30	.88	2.9	1.15Ma	D12	12	26.1	77	9
306	S	So. Calif. Edison	72	2.60k	3.6	*4.59De	*20	* 7	*15.7	57	44
56	S	So. Carolina E. & G.	56	1.50	2.7	2.05Ma	8	6	22.4	73	19
297	S	Southern Co.	58	1.50	2.6	1.99Ma	2	8	29.1	75	17
22	S	So. Indiana G. & E.	44	1.70	3.9	2.63Ma	4	3	16.7	65	23
9	O	So. Nevada Power	43	.84m	2.0	1.45Ma	20	5	29.7	58	15
4	O	Southwestern E. S.	21	.76	3.6	1.03Ma	2	5	20.4	74	8
53	S	Southwestern P. S.	31	.88	2.8	1.12Ma	4	6	27.7	79	7
41	A	Tampa Electric	41	.72	1.8	1.22Ap	15	12	33.6	59	11
202	S	Texas Util.	101	2.08	2.1	3.13Ma	7	9	32.3	67	22
49	S	Toledo Edison	24	.70	2.9	1.10Ma	1	—	21.8	64	10
20	O	Tucson G. E. L. & P.	43	.80	1.9	1.06Ma	D15	8	40.6	75	9
159	S	Union Electric	44	1.80	4.1	*2.13Ma	* 6	* 5	*20.7	84	18
40	O	United Illuminating	33	1.38	4.2	*1.76De	* 4	* 2	*18.7	78	16
8	O	Upper Peninsula Pr.	35	1.70	4.9	2.31Ma	20	—	15.1	74	20
53	S	Utah Power & Light	34	1.32	3.9	1.83Ma	D1	4	18.6	72	20
161	S	Virginia E. & P.	60	1.30	2.1	1.92Ma	10	8	31.3	68	16
40	S	Wash. Water Pr.	53	2.00	3.8	*2.51Ap	4	* 3	*21.1	80	29
87	O	West Penn Power	71	3.00	4.2	3.65Ma	4	2	19.5	82	26
14	O	Western Lt. & Tel.	33	1.20	3.6	1.78Ma	8	6	18.5	67	29
34	O	Western Mass. Cos.	26	1.20	4.6	1.61De	D3	1	16.1	75	19
141	S	Wisc. El. Pr. (Cons.)	46	1.80	3.9	2.74Ma	D4	7	16.8	66	29
48	O	Wisconsin P. & L.	37	1.48	4.0	2.35Ma	—	7	15.7	63	21
48	S	Wisconsin P. S.	34	1.30	3.8	2.05Ma	4	4	16.6	63	18
		Averages			3.4%		4%	6%	21.7	70%	
		Foreign Companies									
$217	S	American & Foreign Pr.	11	$ .50	4.6%	$1.21De'59	1%	0%	9.1	41%	$32
151	A	Brazilian Traction	4½	.25	5.6	.58De'59	D10	—	7.8	43	28
103	A	British Col. Power	36	1.60	4.4	2.37De	D5	3	15.2	67	32
26	O	Calgary Power	28	.40	1.4	1.09De	14	13	25.7	37	6
19	A	Gatineau Power	38	1.50	3.9	2.25De	13	2	16.9	67	22
17	A	Quebec Power	35	1.60	4.6	2.53De	8	9	13.8	63	27
83	A	Shawinigan Water & Power	28	.68	2.4	1.54De	6	6	18.2	44	19

*Deferred taxes resulting from liberalized depreciation are not normalized. If they had been normalized the price-earnings ratio would be higher, and the rate of increase in share earnings would be smaller. D—Decrease. NC—Not comparable. A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. b—Also 3 per cent stock dividend (paid January 25, 1961) included in the yield; similar dividends are paid annually, representing balance of earnings. c—Also 2½ per cent stock dividend January 10, 1961. d—Also 2 per cent stock dividend May 1, 1961. e—Also regular annual 3.3 per cent stock dividend (3 per cent in previous years), included in the yield. f—Also regular stock dividend of one-half per cent quarterly, included in yield (paid since 1956). h—Also 2.4 per cent stock dividend December 1, 1960, included in yield; stock dividends are paid annually, reflecting balance of earnings. j—The rate of increase would be 12 per cent if the present number of shares had been used to compute share earnings of past years, instead of using the number of shares actually outstanding at the end of each year. k—Also 4 per cent stock dividend February 24, 1961. l—Adjusted for 50 per cent stock dividend June 5, 1961. m—Fifty per cent stock dividend payable January 18, 1961—cash dividend on new stock 84 cents. n—Also 5 per cent stock dividend February 17, 1961.



What Others Think

Salt Water Conversion and the Power Industry

At the twenty-third annual meeting of the American Power Conference, G. E. Sonderman, partner, Singmaster & Breyer, New York, New York, presented a paper, entitled "The Economics of Salt Water Conversion for the Power Industry," which predicted that we today stand on the threshold of a new industry. The press, as Mr. Sonderman pointed out, is inclined to mix fact and fantasy and during the past year we have all read forecasts that the "desert will bloom" and statements to the effect that development of salt water conversion processes are of more importance than the conquest of space.

Mr. Sonderman stated that in the areas where there is a water shortage problem, utilities can expect both load and territorial growth as a result of salt water conversion activities. He forecast that there is the possibility that steam plants might be coupled with water distillation processes.

Prior to looking into the future of water conversion, Mr. Sonderman outlined the recent developments in the field. He observed that in 1955 three projects were undertaken in this field and costs per thousand gallons of water produced ranged from $1.75 to $2.50. Three years later, he said, the Office of Saline Water in the Department of the Interior sponsored two major plants which, it is anticipated, will produce water at costs of about $1 per thousand gallons. Mr. Sonderman noted that this year the developers of various sea water conversion processes talk in terms of 50 cents per thousand gallons of pure water produced.

Mr. Sonderman was quick to point out that even at 50 cents per thousand gallons the price is still not attractive to municipal water suppliers whose costs of obtaining natural water is frequently 10 to 20 cents. He observed that distribution costs average 20 to 30 cents per thousand gallons and that this figure must be added to the cost of the water itself. Thus, he noted, even the tremendous improvement in the economics of sea water conversion has only brought us to the brink of finding real applications. He stated that elsewhere in the world the economics of sea water conversion becomes more involved owing to large amounts of fuel (in the oil-rich Middle East, for instance) and the general lower cost of labor which influence both construction and operating costs.

The distillation process, Mr. Sonderman noted, is still the only proven process and accounts for practically all of the 20 million gallons of water produced a day. Mr. Sonderman indicated that there

are at least four directions in which further improvements can be made. These are: (1) increasing the operating range of the process cycle by starting at higher initial temperatures; (2) improving the heat transfer; (3) combining of distillation processes such as using vapor compression for denser vapors and flash distillation at the lower end of the cycle; (4) developing low-cost heat sources from spent nuclear fuels, gas turbine exhausts, or any form of waste heat.

It is Mr. Sonderman's contention that there are two aspects of involvement tor the power industry in the conversion of saline water. One of these, he stated, is the direct application of techniques of purifying unsuitable waters to make them usable for boiler feed for steam-electric utility stations. The other is the development of a sister industry. In relation to this first benefit he related that by using the multistage flash evaporators developed by the sea water industry, units can be put in the lowest stage of a steam plant regenerative cycle at some thermal gain. When supplied with water from a municipal supply the purity of the water supplied by such evaporators is satisfactory for even high-pressure boilers without further demineralization.

The broader implications for the power industry, Mr. Sonderman stated, fall into the following three categories: (1) load building; (2) territorial growth; and (3) participation in the water industry.

Mr. Sonderman pointed out that in a good many areas, even where there is an adequate supply of water, the water itself is not satisfactory. In such areas there may be a high mineral content and while such water may not be dangerous for drinking purposes it is less than an ideal product. In such areas small converters are used, he stated, and the majority of these are electrically operated. One type of desalter for moderately brackish water is the electrical membrane unit.

Mr. Sonderman estimated that electricity consumed by these units would be 2½ kilowatt-hours for 300 gallons of product water—this, he stated, may be considered an average daily consumption for a family. This is essentially the single family-type unit and the next larger size would be for hotels and motels. There are also community size electrical membrane converters now in use. He pointed out, also, that work is now being done on a compact vapor compression still that would also require electricity.

Much is being published, Mr. Sonderman commented, about the growing scarcity of water in many parts of the country, with dire predictions about the future. He concludes that if these forecasts are true, it would not be unreasonable for the electric companies to aid in the development and sale of appliances that would produce good water from bad, not only as load builders but also as a necessity to growth of customers. He also stated that there are the large areas that have good climates but no water. Such areas, he believes, would be quickly populated if water were available and this, of course, would increase the territory being served by the electric companies.

Regarding this helping-hand approach to the salt water conversion business, Mr. Sonderman stated:

> So it would seem that the power industry stands to benefit materially from any developments that make the conversion of brackish or sea waters an economically attractive possibility in their territories. Of course, they can simply await developments of better



"SHALL I GIVE IT TO YOU STRAIGHT J. B.—OR WOULD YOU RATHER I HMMM'D AND HAW'D AND BEAT AROUND THE BUSH A BIT?"

equipment for such conversion by outsiders. Some of the more farsighted utilities are already working with salt water evaporators in their steam plants. This helps the utility to gain a better knowledge of late developments and also encourages manufacturers to offer improved ideas. It would seem expedient for the power industry to lend a helping hand to the developers of the water conversion business.

THE concept of having utilities participate in water production, Mr. Sonderman stated, "will cause many utility men to shudder." However, he pointed out that in the really big plants ranging from 10 to 100 million gallons of water a day, the distillation process will probably be king. Then, he observed, the idea of combining a steam plant with a steam distillation plant becomes logical.

In conclusion, Mr. Sonderman noted

that this country already is short of water and, with the tremendous rise in water demands predicted, the power industry will become increasingly aware that water, or lack of it, affects its customers, its territory, and its profits.

Bell and USITA Fight Excise Tax

THE position of the American Telephone and Telegraph Company regarding the telephone excise tax is well-known. Recently Alexander L. Stott again presented AT&T's case against this levy before the House Committee on Ways and Means which is studying President Kennedy's tax message to Congress. Speaking on behalf of the telephone companies in the Bell system, Mr. Stott said users of telephone service would feel the effect of repeal of this tax immediately and directly. Mr. Stott pointed out that 23 cents out of each dollar of Bell system revenues go for income and other operating taxes—or about $48 per customer per year. The excise tax represents the imposition of an additional amount—almost $17 per customer per year—on top of this already heavy tax burden.

The repeal of this tax, Stott believes, could result in very much larger use of telephone service. He estimated that even if this would mean only a 2 per cent boost in residence telephones and a 5 per cent increase in long-distance messages, this would result, perhaps, in as much as $500 million of additional construction. Clearly, Stott stated, this would create many new jobs inside as well as outside the telephone industry.

The excise tax is scheduled to expire this year. Last year, it will be remembered, Congress amended the law so that new enactment would have to take place each year, thus eliminating the wartime tax's automatic renewal. The Eisenhower administration felt that this source of income was necessary for the budget and President Kennedy has requested that it again be enacted, following its expiration date on June 30th.

ALTHOUGH the position of AT&T has been set forth many times, the views of the independent companies have received much less notice. At the same hearings at which Mr. Stott appeared, Clyde McFarlin presented the views of the United States Independent Telephone Association. The scope of his statement to the committee ranged over the entire field of taxation and its effect on the country. However, the greater part of his remarks were devoted to the need for eliminating the 10 per cent tax on telephone bills.

Mr. McFarlin advised the committee that the USITA is well aware of the importance of the President's view that the national security requires a continued high level of tax revenues from practical and proper sources. He pointed out, however, that Congress must face the fact that there is the possibility that the telephone tax will become a permanent part of our tax structure, simply because it produces considerable revenue and is comparatively easy to collect. He stated that it has always been a precept of the American people that an unjust or improper tax does not become just or proper merely because the government needs the money.

The fact that the telephone industry is a regulated industry, and one that the public must use because it has no practical alternative, is a matter which Congress must consider, McFarlin noted. Congress,

he said, recognized the unfair and unpopular nature of this tax when it enacted legislation in 1960 which provided for the expiration of the levy on local telephone service on June 30, 1961. Subsequently, the tax was extended for a period of one year.

TELEPHONE excise taxes have always been enacted on an emergency basis. However, McFarlin observed that the present tax has remained on the books long after the World War II emergency has passed. McFarlin emphasized that this tax is on the customer—over and above the normal local and federal taxes which the industry itself pays. Excise taxes collected from customers of independent telephone companies totaled about $79,516,000 in 1960 and during this same period the independent companies themselves paid out some $200 million in taxes.

McFarlin pointed out to the committee that no other household utility service has been singled out for federal excise taxation.

Mr. McFarlin said that, since the burden of collecting the tax is on the telephone company itself, this forms another financial handicap. Since the telephone industry is a regulated industry, with charges just covering the rendering of the service, plus a fair return on the property or investment used in the service, the federal tax is necessarily imposed above those rates that have been established as fair to the consumer. He further contended that the excise tax tends to dry up the capital market by subtracting from the customer's spendable dollar.

The USITA, McFarlin informed the committee, opposes the presidential recommendation that Congress enact an extension of the 52 per cent corporate tax rate. He noted that in the absence of such legislation, the corporate tax rate would be decreased to 47 per cent. Such a tax reduction, he stated, would stimulate a dynamic resurgence of business. The USITA also opposes the proposed withholding tax on corporate dividends, as well as the proposed repeal of the dividend credit.

THE President's tax credit plan on new plant and equipment expenditures was endorsed by McFarlin. However, he emphatically opposed the President's limitation which would exclude public utilities, including telephone companies, from such benefits. On behalf of the USITA, he urged that the President's proposal for taxing the earnings of co-operatives be enacted. In relation to the co-operatives, he stated that the principle of equal taxation of all business enterprises should not be excluded from the area of public utility operation. He also indicated that the USITA approves the President's proposal that the abuses of business expense deductions should be eliminated in the interest of fair and honest business practices.

McFarlin's testimony on the telephone excise tax, in many ways, reflects the attitudes and feelings of the entire industry. However, the USITA's position on the other recommendations contained in the President's tax message are somewhat less well-known. Despite strong opposition from the telephone industry, most Washington observers feel that Congress will again vote to extend the telephone tax. This in no way means that the efforts of the USITA and the Bell system have been wasted. Congress is slow to act and the telephone industry will have to continually keep the issue before the legislators, if the war-imposed tax is ever to be permanently removed.

What Is Ahead for Atomic Power?

LATE in March Titus G. Le Clair spoke to the American Power Conference in Chicago, Illinois, outlining the future of atomic power. He told the group that at present, even though our supplies of fossil fuels are adequate, they are not inexhaustible. The time may come, he observed, when it will become important and necessary to conserve such fuels for transportation or for chemical raw materials.

Mr. Le Clair noted that the electric industry expects great growth and that if this rate of expansion continues for another forty years, some interesting problems may arise. As an example, he supposed that all the power in the Chicago region would be produced from coal and that the use of this fuel doubles every ten years. Let us further assume, he stated, that all of the coal from the Chicago region is shipped over rail by a single route. The coal needed to do the job would require 100 train loads with 100 cars to each train. However, he noted, transportation is only one of the problems. There will be the difficulties of disposing of ash and large quantities of combustion products which will be dispersed into the air. This, Le Clair observed, is another reason for the consideration of the atom as a fuel source.

When one speaks of the difficulty of disposing of waste materials the subject of atomic wastes nearly always comes up. However, Le Clair pointed out to the group that the spent nuclear fuel and fission products resulting from the operation of a 1 million kilowatt high-temperature, gas-cooled reactor plant for a period of thirty years could be stored in a quarter-acre vault 20 feet deep. The ashes from a coal-fired plant, he stated, would occupy 1,000 times the volume.

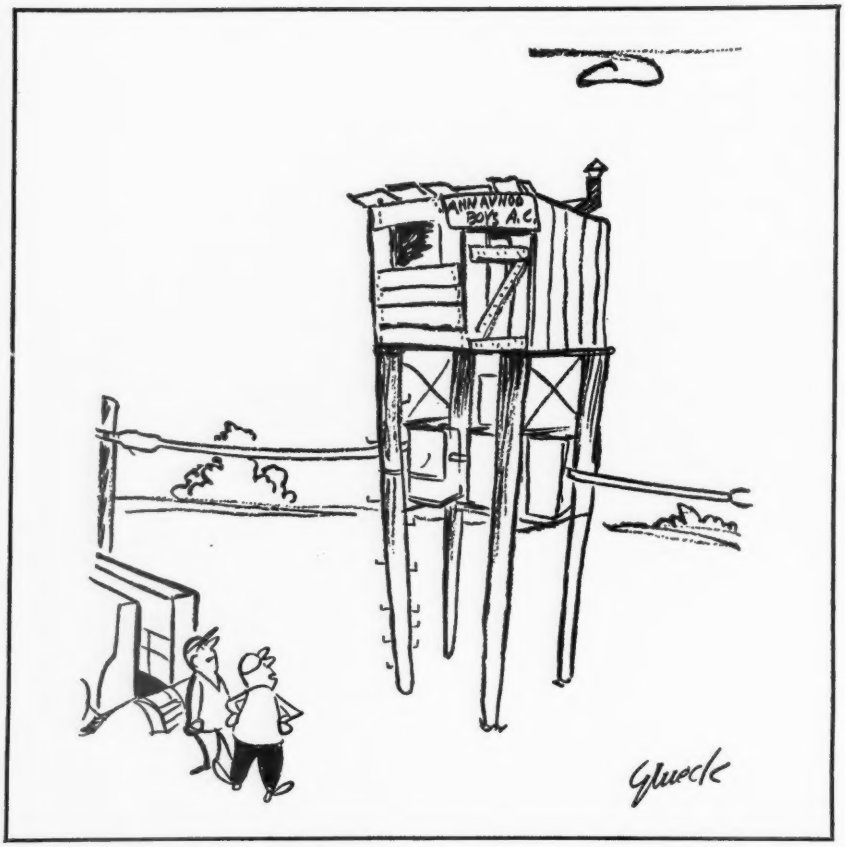
At the time of Mr. Le Clair's speech, 132 electric utilities were participating in one or more of 26 atomic energy projects.

Le Clair stated that the participation of the utilities is evidence that they believe that, technically, atomic energy can be made to work. It has been proved that nuclear generation of electricity is feasible and now, Le Clair asserted, we must face the problem of making this new power source competitive.

Outlining the advances made in comparative cost Le Clair [illegible]ted that the first full-scale nuclear power plant designed for operation by a utility was built at Shippingport, Pennsylvania, in 1957 and it produced power at an initial cost of about 50 mills per kilowatt-hour. This plant, he pointed out, had a capacity of 60,000 kilowatts and new plants with a capacity of 300,000 kilowatts are now in the design stages. Plants scheduled for completion in 1963 or 1964 are expected to be able to supply power at a cost approaching eight mills. However, Le Clair stated that it is obvious that power costs must be brought down still further.

MR. LE CLAIR forecast that spectacular gains can be made in the area of increased power density in the reactor core. For instance, the second core for the Shippingport reactor will raise the power of the plant two and one-half times without an increase in the size of the pressure vessel. He also stated that most present-day reactors produce steam at pressures and temperatures which were standard for turbines many years ago. In the future the turbine-generator efficiency can be brought up substantially, he stated, as soon as the reactor is able to produce the necessary high temperatures.

Turning to the subject of steam pres-



sures, he recalled that the earliest nuclear power plant, Calder Hall in Britain, produced steam at a pressure of 210 pounds and at a temperature of 790 degrees Fahrenheit. The Dresden plant produces steam at 1,000 pounds pressure at 550 degrees Fahrenheit, and the Peach Bottom plant is expected to reach 1,400 pounds pressure at a temperature of 1,000 degrees.

THE cost of atomic fuel is something that has baffled a good many people. In theory, at least, Le Clair pointed out, one pound of uranium, if all of it fissions, produces as much heat energy as the burning of over two million pounds of coal. However, Le Clair pointed out that natural uranium contains only one part of U 235 which can fission and 140 parts of U 238 which must be converted into plutonium before it can release its energy. This, he stated, requires an expensive separation process.

MR. LE CLAIR observed that safety has a strong influence on nuclear costs. Every reactor, he noted, is contained within heavy radiation shields to prevent the escape of any radiation. In cases where a reactor is built near a population center a secondary airtight container is

constructed which would act as a safeguard in the event all normal protections failed.

He noted that, in spite of built-in difficulties, the atomic safety record is far better than the average for all industry. He called upon utilities, manufacturers, and other associated agencies to educate the general public to the fact that nuclear power is at least as safe as any other available form of energy.

AVOIDING any definite forecast as to when the atom might compete with fossil fuels, Le Clair instead reported the results of a survey he had conducted among utilities, manufacturers, and labor leaders.

The considered opinion of this group, he reported, was that the change in cost of fuel between the present and ten years hence would be:

Type of Fuel	*Increase in Thermal In 10 Years*
Fossil	Up 12.9%
Nuclear	Down 9.4%

In the same ten-year period the group questioned indicated that they expected the following changes in overall efficiencies:

Type of Plant	*Change in Unit Price Efficiency**
Fossil	2.9%
Nuclear	4.5%

* 30% to 33% = 3%

LE CLAIR noted that these are only a few of the areas in which improvements will be made. He observed the ingenuity of designers will further reduce costs. On the basis of this it is interesting what Mr. Le Clair's survey indicated regarding that portion of new power plant capacity that will be nuclear rather than fossil fuel. The median estimates that he gave are the following:

Year	*Generating Capacity Ordered Which Will Be Nuclear*
1965	4%
1970	10%
1980	25%

As Le Clair commented, the figure of 25 per cent of the nation's total generating capacity may sound discouraging; however, it must be remembered that if the new electric-generating capacity expands at the rate forecast, this would amount to over 10 million kilowatts.

Contrary to earlier forecasts, Le Clair stated that the achievement of economic nuclear power is a difficult task. He feels, however, that it is one that is well worth the effort. He believes that the date of achieving the economic goal depends on the strength of the effort made by the manufacturers, utilities, and the federal government.

IN the May 25th issue of the FORTNIGHTLY, on page 767, the remarks of Representative Chet Holifield (Democrat, California) on this same subject were printed.

At the moment there does seem to be some apathy toward the entire program of nuclear power development—considering the huge costs and the availability of conventional fuel this is easily understood. However, research and resultant cost reductions, as Le Clair indicates, are sure to go on. Added interest and activity can be expected when cost reductions reach a significant level when equated with growing doubt about the fossil fuel reserve. Atomic generation of electricity will steadily be on the increase but it seems to be agreed that it is not going to be an overnight proposition.

Atomic Power in New York State

THE Empire State Atomic Development Associates, Inc., has published a booklet, entitled "Atomic Power for the Empire State." It is the feeling of this group that atomic power can do much to stabilize and improve the energy economy of the New York state area. At the present time this area is heavily dependent upon supplies of fossil fuel located some distance outside of the borders of New York state. ESADA consists of the following companies: Central Hudson Gas and Electric Corporation, Consolidated Edison Company of New York, Inc., Long Island Lighting Company, New York State Electric and Gas Corporation, Niagara Mohawk Power Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.

The booklet outlines the general background of the ESADA program, as well as touching on the subject of the energy situation in New York state. The present status of atomic power development and the framework of the atomic power industry are also treated. The booklet notes that the ESADA program aims at establishing a sound basis for the design of a full-scale atomic power plant that will operate reliably at high temperatures, thereby achieving high efficiency in converting heat to electricity.

In relation to the desirability of atomic power in the New York state area, the booklet observes that there is a definite trend in conventional power plants toward larger stations and that, in the case of atomic power plants, the savings in the capital cost per unit of power output is pronounced. It is stated in the booklet that generating capacity of from 300,000 to 500,000 kilowatts seems to be a prerequisite condition for achieving economically competitive atomic power. This reflects the general feeling in the electrical industry that when atomic power becomes economically competitive with conventional fossil fuels it will be through large-scale nuclear generating plants.

THE publication reports that about a year ago the ESADA resolved to pool its efforts and jointly determine the status of atomic power costs within the framework of New York state. This study indicated that a 1964 plant would, over its lifetime, generate power at an average cost slightly above nine mills per kilowatt-hour if operated at an 80 per cent plant factor. The corresponding figure for a fossil fuel plant would be approximately 7.5 mills per kilowatt-hour. Reduced costs could be achieved, the study concluded, due to the following: (1) increased plant size; (2) higher thermal conversion efficiency due to improved steam conditions; (3) improved atomic fuel fabrication and utilization.

This interesting booklet on atomic power in the New York state area concludes that such power is on the threshold of becoming an influential factor in the energy economy of the state. It is stated that if the present progress in atomic power is maintained, there is "a distinct possibility" that a level of performance competitive with conventional stations will be in actual plant operation before the close of the decade.

ATOMIC POWER FOR THE EMPIRE STATE, published by the Empire State Atomic Development Associates, Inc. 4 Irving Place, New York 3, New York, pp. 14, illustrated.

The March of Events



AEC Cancels Reactor Project

THE Atomic Energy Commission has canceled a reactor project in Florida due to technical and economic uncertainties. The project was to have been built by the Florida West Coast Nuclear Group, composed of the Florida Power Corporation and Tampa Electric Company, and the East Central Nuclear Group, composed of 14 utilities largely in the Midwest. A contract for construction was signed in 1959.

Technical problems, involving the redesigning of the reactor fuel elements, increased the cost of the plant to such an extent that the two utility groups proposed that the commitment to build the plant be deferred until the end of 1962, and that the government and industry continue their research efforts. The utilities further indicated that they would go ahead with construction if indications pointed to the fact that power could be produced at no more than 50 per cent above conventional fuel costs. The AEC did not agree that the project should go ahead on that basis.

Thus far, only one atomic power plant has been completed under the so-called "partnership" approach. This is the Yankee atomic plant at Rowe, Massachusetts. Five other plants are under construction and another five projects have been dropped in the last two years. Six projects which have been authorized by Congress have failed to attract private or public power groups to undertake them.

Chairman Holifield (Democrat, California) of the Joint Atomic Energy Committee has termed the "partnership" approach a failure and has urged that the nation return to a program of federal construction of atom facilities. Under this plan, the government would develop this mode of generating electricity until private industry is willing to take over the project.

Representative Holifield was cosponsor of the Gore-Holifield atomic energy bill which would have set up such a program.

FPC Nominations Approved

THE Senate Commerce Committee has approved President Kennedy's two nominations to the Federal Power Commission despite opposing testimony on both Joseph C. Swidler, Nashville attorney, and Howard Morgan, former Oregon utility commissioner. The vote on Swidler's nomination was reported to be 13 to 2. The vote on Morgan's nomination was somewhat closer, but sufficiently decisive to indicate that he would be confirmed.

The opposition was reported to have been entirely partisan.

California

Tax Proposal Advances

A PROPOSED state constitutional amendment to levy a 1½ per cent gross receipts tax against telephone companies in the state was favorably reported to the state senate by its revenue and taxation committee. Under the measure, listed as SCA 26, the tax would be in lieu of other specified taxes and charges against the telephone companies levied by cities and counties. It would amount to about $8.5 million a year.

The tax would be collected by the state and distributed to the cities and counties on the basis of population. The proposed legislation was sponsored by Senator Richard Richards of Los Angeles county, who said its purpose was to bring the telephone companies into line with other utilities and provide a uniform levy. He said other utilities—gas, electric, and water—now pay a franchise tax to cities and counties, but telephone companies are not required to pay such a fee.

Delaware

Senate OK's River Basin Pact

THE state senate approved, 16 to 0, with one member abstaining, the proposed interstate-federal compact for development of water resources of the Delaware river basin. (See, also, page 805.)

The house had previously approved it by a vote of 32 to 0, with two not voting and one absent. The bill was sent to Governor Elbert N. Carvel, who has announced that he favors it.

Delaware became the third of the four states involved to pass the compact. New York and New Jersey approved it earlier. The Pennsylvania legislature was reported to be considering it and has received some objections.

Kansas

Proposed Legislation Rejected

A PROPOSED study of possible legislation to place extensions of municipally owned power and light facilities outside city limits under the jurisdiction of the state corporation commission was rejected by the state legislative council.

The proposal was submitted to the council by two state representatives. It was similar to a bill rejected by the 1960 Kansas legislature.

Kentucky

Housing Unit Sues to Halt Tax

THE Louisville Municipal Housing Commission wants the state of Kentucky to stop taxing its utility bills. That was the gist of a suit filed in Franklin circuit court at Frankfort last month naming Revenue Commissioner William E. Scent as defendant.

The commission, which operates federally aided low-cost housing, argued that it was entitled to exemption from the state sales tax on utility bills because it is a public charity and a public property used for public purposes.

On this basis it has been exempted from paying sales tax on everything but utility bills, said attorneys for the housing commission. General counsel for the housing commission said it did not pay the former

3 per cent utility tax which was replaced by the sales tax on utility bills.

The housing commission and the revenue department have been unable to reach an agreement on the utility bills. The suit asks a declaration of rights.

Michigan

Gas Rate Increase Approved

THE state public service commission has granted Consumers Power Company a rate increase of $7,925,307 for its natural gas service. The company had sought an annual rate boost of $13.5 million. The permitted boost will raise the monthly bills of 520,000 gas customers in 30 southern Michigan counties.

The commission, for the first time, permitted computation of the company's charitable contributions and donations and its chamber of commerce dues as items of business expense which would be considered in setting rates. On that point, the commission overruled the arguments of its own staff which contended that such a policy would force ratepayers to make involuntary contributions to charitable and other organizations. The commission's staff contended that such contributions should be borne by the company's stockholders.

Phone Tax Dead

THE Michigan senate has rejected a proposal by Governor Swainson for extension for another two years of a state tax of 4 per cent on telephone and telegraph service.

Originally enacted in 1959 as part of a package of so-called nuisance taxes, the levy produces about $10 million a year. It is scheduled to expire June 30th.

Missouri

Seeks Gas Rate Increase

LACLEDE GAS COMPANY of St. Louis has filed a petition with the state public service commission seeking permission to increase its rates by $3.7 million a year, including a 5.9 per cent boost for all residential customers in the city of St. Louis and St. Louis county.

H. Reid Derrick, president of the company, which has 388,000 customers, all in the city and county, said the requested increase is the "bare amount necessary to offset new increases in the company's cost of gas and the related gross receipt taxes."

Under a rate schedule filed by the utility, the monthly bill of the average domestic customer who does not use gas for heating would increase 13 cents, Derrick said.

Those who heat with gas would pay an average increase of 76 cents a month on a 12-month basis. Increases to commercial customers would vary, he said, according to types of service.

Nebraska

Legislation Killed

A BILL which would have allowed the state railway commission to regulate the sale of natural gas to farmers outside the corporate limits of cities was killed by the state legislature's agriculture committee. The measure was sponsored by State Senator Jensen of Aurora, who said the bill was needed to protect pump irrigators, who, he felt, were at the mercy of gas companies.

The bill was opposed by several Nebraska gas companies, who said present federal laws afford protection.

Oregon

Bill Sent to Governor

THE state legislature has passed and sent to the governor a bill which would authorize the public utilities commissioner to issue certificates establishing service areas for utilities of the state. It will serve to protect territories of existing service agencies, it was said.

Since the original bill was proposed by the state commissioner, an appointee of the present administration, the governor was expected to sign the legislation.

The legislation would also make it lawful for utilities that are serving in the same area to enter into agreements regarding the division of the area and to sell or exchange portions of property to eliminate unnecessary duplication of facilities. The law would not apply where there are two or more utilities lawfully serving within cities.

Support for the measure came from utilities serving approximately 80 per cent of the residents in the state.

Pennsylvania

Rincliffe Receives Award

R. GEORGE RINCLIFFE, president of the Philadelphia Electric Company, on May 15th received the 1961 award of the Philadelphia Public Relations Association for his promotional efforts on behalf of the city of Philadelphia. He is the eighth recipient of the award, given annually to "that citizen of our community who by his acts and abilities has brought an outstanding measure of honor and renown to Philadelphia."

Mr. Rincliffe was honored for his company's national advertising program promoting the Port of Philadelphia. He was also cited for his rôle in uniting utility companies throughout the country for development of peaceful atomic uses.

Washington

Reimbursement Law Ruled Constitutional

IN a ruling, which was expected to be appealed by the state, a Washington state law providing for the reimbursement of public utilities for the cost of relocating their facilities when necessitated by interstate highway construction was recently held constitutional by Superior Court Judge Malcolm Douglas in Seattle.

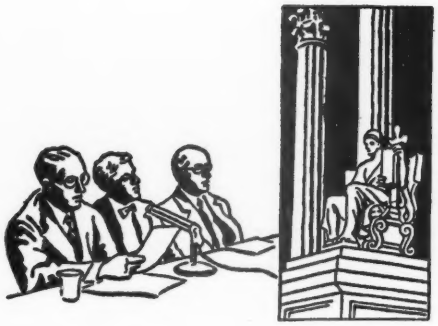
The law, which affects such utilities as telephone, water, gas, and light and power companies, had been challenged by the state highways director.

West Virginia

Water Bond Order Upheld

THE West Virginia supreme court of appeals has refused to hear an appeal of a state public service commission order, filed by a municipality, in which the commission ordered the municipality not to pay more than 25 per cent of the amount necessary to service a $115,000 water bond issue from water revenues.

The order resulted from a state commission investigation in which it was found that the town of Monongah had issued bonds in the amount of $115,000 on its water system and that the town had constructed a town administration building in which only 11 per cent of the building's floor space was devoted to water administration.



Progress of Regulation

Trends and Topics

Conflicting Rights of Companies and Co-operatives in Adjoining Areas

RECENTLY reported decisions in North Carolina deal with the question whether an electric company or a co-operative has the right to inaugurate or continue service in certain areas. The right of a co-operative to object to company service was discussed in 58 PUBLIC UTILITIES FORTNIGHTLY 633 (October 11, 1956). An exception to the established principle of protection against competition was noted in decisions involving co-operatives which are not regulated as public utilities. Reference was made to North Carolina decisions (14 PUR3d 342; 14 PUR3d 364) upholding the right of persons living in the area occupied by a membership corporation to demand service from a telephone company, and reference was also made to decisions in some other states.

Continuation of Service in Area Annexed to City

In one case before the North Carolina supreme court questions were raised as to the continuation of service by Carolina Power & Light Company and Pee Dee Electric Membership Corporation in a portion of Knob Hill, annexed to the city of Rockingham January 9, 1957. A lower court had denied an injunction against the power company and had enjoined the co-operative from continuing any service. The court concluded that Pee Dee might continue to serve, from distribution lines constructed in Knob Hill prior to that date, persons who were members on that date and who desired to continue their membership and to receive service from Pee Dee. Persons in the annexed area who did not become members of Pee Dee prior to January 9, 1957, were not eligible for such membership. Eligibility was to be determined as of the date application therefor was made. Prior to that date the power company did not supply electricity to any residents in Knob Hill and had no lines or facilities therein but began service later.

The court stated the principle that a contract between the company and the

co-operative for the sale of power to the co-operative, providing that neither would duplicate the lines of the other, did not bar the company from serving customers which the co-operative might not lawfully serve in an area annexed to a city which had granted a franchise to the company. An electric co-operative is authorized to operate only in a rural area to serve members who are residents of such area. The co-operative may continue to serve members residing in an area that has been annexed by a city, notwithstanding its lack of franchise, but it may not serve customers within the incorporated limits desiring to become members after the date of annexation (37 PUR3d 387).

The North Carolina supreme court, in another case involving annexation of a suburban or rural area, decided in favor of Blue Ridge Electric Membership Corporation and against Duke Power Company. Duke was supplying Blue Ridge with current for resale, and Blue Ridge was selling current to its members residing within the corporate limits of the town of Hudson. Some of these members were citizens of Hudson when Blue Ridge first began to supply them. Some were made citizens by annexation after they began to receive current. Duke had, but Blue Ridge did not have, a franchise from Hudson.

The court referred to the contract between Duke and Blue Ridge providing that power delivered was for the purpose of resale primarily to rural homes and farm consumers who were not located in any incorporated city or town. The contract had been formally approved by the state commission. Hudson and all of the county except one town were, when the contract was made, rural areas. Duke did not have a transmission line in the area. The court concluded that the contract did not prohibit Blue Ridge from selling to its members current purchased from Duke merely because they resided within the corporate limits of Hudson. The court said that Blue Ridge was, because of the failure of the town and Duke to provide service, rightfully serving the inhabitants of "this rural community." Hudson's action in expanding its boundaries so as to remove it from the category of a rural community did not make the original entry or its continued operation unlawful (37 PUR3d 396).

The court referred to the fact that the right of electric membership corporations to continue to provide service to those members who by annexation became citizens of a municipality had been considered by the supreme courts of Arkansas, Georgia, and Texas. The right to serve was in each case made to depend on proper construction of the statutes of the states. In Arkansas the court concluded that the right of a membership corporation to serve its members terminated when they became citizens of a nonrural area by annexation (95 PUR NS 54). The Georgia court held that a rural co-operative had no right to serve applicants for membership who were at the time of the application citizens by annexation of a municipality which did not meet the statutory definition of a rural area (211 Ga 842, 89 SE2d 657).

The court referred to the decision in Texas where a power company had a franchise from a municipality and challenged the right of Upshur Rural Electric Co-operative Corporation to sell current in the municipality. The

statute provided that membership was terminated by the resignation, expulsion, or death of the member, but there was no provision that it was terminated by annexation. It was the view of the court that the co-operative was authorized to continue that service after annexation. The Texas court held that the co-operative could not start service to new customers (18 PUR3d 53).

General Rule Stated by Commission

The North Carolina commission denied a petition by an electric membership corporation requesting an order requiring an electric company to cease and desist from constructing facilities and providing service to an applicant in a disputed service area. The action of the company in constructing a line to provide service to a municipal water installation in a borderline area between its territory and that of the co-operative, the commission held, did not constitute a duplication or paralleling of existing facilities of the co-operative. The commission went on to state certain principles relating to Rural Electrification Administration co-operatives. It said that they are not public utilities in the conventional sense. They may serve only their members. They are completely free from commission regulation, and they do not occupy exclusive franchises or territories. Public policy permits an electric company as a public utility to compete freely with these co-operatives.

Where a co-operative was not supplying, within the disputed area, service of the kind actually required by the new municipal water installation, the commission said it would not require the company to cease from rendering an economically feasible service. The commission made the further statement that where an applicant not presently receiving services within economic reach of the lines of a public utility and those of a co-operative, he is legally entitled to elect the service of the public utility.

The commission also ruled that a contract between the company and the co-operative limiting competition did not bar service in a disputed area since such service occurred prior to the execution and delivery of the contract. Moreover, even if the contract related back, the commission would have the duty to declare the applicable portion void in so far as it impaired the company's obligation to serve all applicants within economic reach of its lines (37 PUR3d 407).

The North Carolina commission denied a complaint by a customer of an electric co-operative for an order requiring an electric company to provide service upon a finding that the public interest did not require such service to a customer receiving adequate service from a co-operative, although the co-operative rates were somewhat higher. The commission stated, however, that the mere fact that a customer is receiving adequate service from a co-operative does not as a matter of law preclude the customer from obtaining service from a different source under proper circumstances (37 PUR3d 264).

Decisions in Other States

The Colorado supreme court upheld the commission's dismissal of a com-

plaint by an electric co-operative against territorial encroachments by electric companies. The court said that a co-operative serving members only did not acquire public utility status by deleting from its articles of incorporation a provision that it would render no service to the public in general and by altering its original purpose to serve "members only" to read "members and customers." The court held that a co-operative had no standing to complain that a public utility company was invading its service area, since it had no service area because it was not a public utility. The only limitation placed upon an expansion by a certificated utility into contiguous territory, said the court, is that it did not expand into an area being served by a utility of like character (33 PUR3d 222, reviewing decision in 17 PUR3d 160).

A telephone company was directed by the Illinois commission to extend service to customers in a co-operative's area, notwithstanding the company's previous refusal to serve such persons unless a written release had been obtained from the co-operative. The co-operative was not subject to commission regulation and the quality of service available in lieu of company service was unsatisfactory (18 PUR3d 158).

The public, said the Missouri commission, is not required to use the service of a co-operative and may require instead the service of a utility authorized to serve the area and operating under the jurisdiction of the commission (16 PUR3d 484).

The New Mexico commission authorized an electric company to construct a transmission line and furnish service to a mining company and other prospective consumers in the area, notwithstanding a protest of an electric co-operative. The commission ruled that the co-operative should not be permitted to intervene since it was not a public utility within the meaning of applicable statutes and might only be permitted to participate in the proceedings as a protestant. The company showed that it had contracted with the mining company to supply its power requirements, that it had ample generating capacity, that it had sufficient funds, and that it was able to provide the required service (37 PUR3d 241).

The North Dakota commission held that a power company was not required to obtain a certificate to extend service within a district in which the company had commenced operations, even though it resulted in competition with a rural electric co-operative (3 PUR3d 347). The same commission ruled that an electric company might lawfully serve an area immediately adjacent to a community which it was certificated to serve, even though a co-operative was also serving the same area (5 PUR3d 108).

The Utah supreme court upheld findings that an area required more electric service than it was receiving from electric co-operatives and that Utah Power & Light Company should be allowed to serve. The court noted that the co-operatives could serve only members and were not public utilities (13 PUR3d 127).

Review of Current Cases

Expense for Employees' Stock Plan Recognized Along with Charitable Contributions

CONTRIBUTIONS of a gas company toward the purchase of its stock in the open market for employees, along with modest charitable contributions, were recognized by the Mississippi supreme court as legitimate rate-making expenses of United Gas Corporation. The court also held that wage and postage increases and increased gas purchase costs were proper operating expenses. On these points the commission was reversed. It was affirmed, however, in its use of a net investment, or original cost less depreciation, rate base.

Stock Purchase Expense for Employees

Any employee who has five years of service may use up to 10 per cent of his salary to buy stock in the company on the open market, and the company will pay an equal amount toward such purchase. The purchase is handled through trustees, and the stock becomes the property of the employee.

The commission had disallowed this expense, taking the position that the effect of the plan was to require gas consumers not only to purchase the stock for the employee-stockholders but also to pay a fair return on this property. The company's witness contended that this expense in no way provided additional capital, but that the company's payments under the plan constituted an essential expense, as much as payments of salaries and wages. The plan was adopted as a part of the overall employee benefit program. It was urged that the stock plan payments would result in improved employee morale, promote employee security, and reduce employee turnover.

The court could not say the plan failed to promote employee security and reduce turnover, and there was no evidence that the company had abused its managerial discretion. It therefore held that the commission erred in disallowing this expense.

Donations

Modest contributions to important local charities, made to preserve community good will, should be allowed, the court indicated. A public utility must be a good citizen as well as an efficient servant of its customers. On remand of this case, the commission may consider the effect of savings on income taxes as a result of the company's charitable donations and allow only the net cost of the donations.

Adjustment for Definite Increases

On the question of normalizing a wage increase granted in the middle of the test year, the commission urged that it could not isolate wages and make adjustments for that item alone without considering other factors which tend to reduce the overall cost of service. Hence, it declined to normalize for any wage adjustment during the test period and for the future, and it disallowed increased wages as an operating expense. The court observed that rates should be tested for the future upon the basis of actual operating experience of a representative period of time, adjusting that experience for changes that appear to be definite and certain, such as increased wages. To ignore a definite increase in expense is to defeat the very idea of fixing rates for the future upon intelligent and informed estimates, said the court. The experience

of the test year is at best a guess for the future, and if the guess can be made more in line with the probability both the company and the public will benefit.

The commission was held in error for disallowing an increase in postage rates which went into effect in 1958, at the same time the proposed rate schedule became effective. The court thought there was no problem of remoteness or distortion resulting from this precise item of expense. It was a definite and ascertainable expense, which should be allowed.

Gas Cost Increase

The court also ruled that filed and bonded rate increases in the cost of gas purchased from an affiliated pipeline company operating under the authority of the Federal Power Commission must be allowed as an operating expense. The commission had disallowed this item on the ground that it was speculative and contingent, and that the commission was without jurisdiction under Mississippi law to allow it. It was said, with respect to the latter ground, that the commission could not require the company to make refund to its consumers of amounts that might later be returned from the supplier, because this would require a retroactive and illegal rate order.

Both reasons were declared erroneous. The company has a statutory and constitutional right to recover its cost of purchased gas incurred at rates filed and bonded under federal law. The state commission may protect consumers by ordering an automatic gas cost adjustment, or escalator, clause in the distributing company's rate schedule, so as to provide for increases or decreases in the retail sale price to reflect changes in the wholesale cost.

Nor would this constitute retroactive rate making. Such a clause would merely provide a fixed mathematical formula for determining future rates.

Weather Not Normalized

Although the commission recognized that the company's earnings are vitally affected by the weather, it, nevertheless, refused to adjust the net income for weather, which was somewhat warmer than normal during the test year. There were conflicting data on the issue, and the court found no error in the commission's refusal to normalize the degree-days for the test period.

Reproduction Cost Evidence Rejected

While the Mississippi statute provides that a reasonable return must be allowed on the reasonable value of the property used in the public service, this was not construed to bind the commission to the use of any particular formula in determining the reasonable value of property for rate-making purposes. It does not require the fair value formula with its emphasis upon reproduction cost, the court declared. Reproduction cost evidence is admissible, but its probative value is for the commission to determine. In this case the commission found the reproduction cost evidence conjectural, speculative, and unreliable, and rejected it. The court thought the commission was justified in this action, since it found that the company gave no consideration to functional depreciation and that the sampling and spot-checking processes were inadequate.

From a net investment rate base, deductions were made for customers' contributions in aid of construction, construction work in progress on which interest was allowed, and tax accruals available for working capital. *United Gas Corp. v Mississippi Pub. Service Commission, 127 So2d 404.*

Utility Has Authority to Construct Power Line Without Commission Approval

A MISSOURI appeals court ruled in favor of the commission in an action by landowners to require the commission to issue an order to an electric company to show cause why it should not desist from constructing a power line which would go over the plantiff's land. The landowners argued that the company should have obtained express approval from the commission, in addition to its certificate of convenience and necessity, before undertaking the construction.

The court held that the company did not need further commission approval, beyond its original certificate to conduct a utility business, for the disputed construction. The certificate simply permits the company to exercise the rights and privileges conferred upon it by state charter and municipal consent; it grants no new powers. The certificate is a license or sanction, prerequisite to the use of existing corporate privileges.

It seems clear, said the court, that the company can perform its duty to render service to all inhabitants in its service area only by a process of extending and building new lines as required. The evidence showed that this has been done since 1938, and the company has had full corporate power to perform that duty. If additional commission authority other than the area certificate were necessary, such a requirement would affirmatively appear in the statutes. It does not so appear. Rejecting arguments of landowners, the court ruled that an electric transmission line is not an electric plant within the meaning of a statute which requires express commission approval for the construction of an electric plant. Nor is the construction of a transmission line the exercise of a right or privilege within the meaning of another statute requiring commission approval of such right or privilege. *Missouri ex rel. Harline et al. v Missouri Pub. Service Commission, 343 SW2d 177.*

Area Rates of Gas Producers to Be Based on Sampling of Industry Costs

ON motion by participants in a prehearing conference is an area rate proceeding for independent natural gas producers, the Federal Power Commission ruled upon the type of cost evidence which may be introduced in such a proceeding. The particular area here concerned is the Permian basin in New Mexico and Texas.

The commission set forth in the Phillips Petroleum Company case (35 PUR3d 199) the reasons why it thinks the traditional rate base method of regulation is not a sensible or workable method of fixing the rates of independent natural gas producers. Cost-of-service studies shall not be permitted in these proceedings, said the commission, regardless of whether they relate to the operations of an individual producer or to any group or groups of the producers involved. This does not mean, however, that no cost data may be introduced. On the contrary, costs are a factor to be weighed in conjunction with other pertinent and relevant evidence in determining just and reasonable area rates.

Fair prices for gas will be based on reasonable financial requirements of the industry and not on the particular rate

base and expenses of each natural gas producer. A representative sampling of industry costs in any area must be accepted as part of the basis for fixing rates for all producers in the area.

Cost Data Distinguished

The question of distinguishing "cost data" from "cost of service" was raised. The commission noted that the measuring of the financial requirements of the industry requires the consideration of many of the items of cost that are included in the traditional cost of service. But the use of cost data to determine financial requirements involves broader concepts of relevant costs, different methods of assembly, revised presentations, and different applications to the rate-making process. It was recognized that cost data presented on behalf of small producers would have to be fitted to their type of operation and to the relevancy of such information to the determination of rates in this proceeding.

Data Identified to Individual Producers

Cost data in this proceeding must be consistently developed on a group basis, the commission declared. They should encompass industry-wide data or data for a substantial segment of a group of similar producers. They must be compiled so as to set forth costs pertaining to operations in the Permian basin area. This will also require a companion compilation of costs on company-wide bases to show the derivation and significance of the Permian basin costs.

Cost data relating to the domestic search, production, and field processing operations of producers with jurisdictional sales in the Permian basin area will be relevant to these proceedings. They should include all the recurring direct and indirect operating expenses, costs of an overhead nature, and other financial requirements that may reasonably be associated with these activities. Where it is necessary to allocate joint costs for gas and oil operations, a uniform method should be used.

In order to eliminate the need for protracted investigation and cross-examination in area proceedings, the commission emphasized that all basic data should be compiled in such a manner that they may be readily identified to the books of account and operating records of individual producers.

The commission deferred consideration of a requested "savings clause" granting individual producers the opportunity to demonstrate the reasonableness of individual, filed rates after the issuance of a final order determining area rates. *Re Area Rate Proceeding et al. Docket Nos. AR61-1 et al. April 5, 1961.*

Rates for Electric Power Interchange and Sales Approved on Cost Evidence

THE Federal Power Commission approved a rate schedule of Public Service Company of Oklahoma for interchange and sales of electric power to Grand River Dam Authority, an agency of the state of Oklahoma. The rate schedule consisted of the terms of a contract between the company and the authority whereby they agreed to co-ordinate their production and transmission facilities. Five classes of interstate wholesale and transmission service would be provided by the company to the authority: (1) capacity and energy deficiency service, (2) energy firming service, (3) economy interchange energy service, (4) stand-by

or emergency service, and (5) transmission or wheeling service.

Although the agreement provided for sales and service by the authority to the company, as well as sales and service by the company to the authority, only the company's rates were in issue in this proceeding because the authority is not subject to rate regulation under the Federal Power Act. It is an instrumentality of Oklahoma with power to fix its own rates, even to the company.

Cost Evidence Supports Rates

The commission observed that the coordinated operation of generating and transmission facilities through agreements between adjoining utility systems for the interchange of various classes of electric service is a well-established and growing industry practice. In determining rates for such service, cost analyses and other factors, such as the sharing of benefits, are considered. It was found that the company's proposed rates would not provide revenues in excess of its costs of rendering the service and would not result in any burden on its other customers. The commission relied on cost evidence, including the company's total power pool costs on a per unit basis, specific items of cost associated with its power pool operation, and its unit incremental costs.

In determining the reasonableness of the proposed transmission service rate, the company's cost allocation method assigned all costs for this service to the demand component on the ground that the company would not provide any energy, since all energy delivered would be returned in kind. The commission sustained this allocation, rejecting the staff's contention that a portion of these costs should be assigned to the energy component.

Using the proposed rates for power and energy supplied to the authority, a rate of return of 3 to 4 per cent was indicated on net power pool investment. A 6 per cent return would be earned on transmission facilities used in providing the transmission service. These figures were found to be reasonable.

No Ruling on Escalation Clause

The commission declined to rule on rates for certain services not currently available, as well as on a general rate escalation provision proposed by the company to offset any increases that the authority may make in its rates for services to the company under their agreement. It appeared that the rates under the escalation provision and the rates for the additional services were all indefinite or incomplete. When the company seeks to invoke the escalation clause or to render the additional services it will be required to make an appropriate rate filing as a "change," at which time it will come under the commission's scrutiny.

The company was required to show explicitly, as a part of its rate schedule, the exchange point accounting and billing procedure which will be followed. In the opinion of the commission, the coordinated operation would result in economies to both the company and the authority and would be entirely consistent with the Federal Power Act. *Re Public Service Co. of Oklahoma, Docket No. E-6816, April 7, 1961.*

Salty Water Certificate Denied

THE New Mexico commission dismissed an application of the Coyote Water Company for a certificate to supply saline waters to oil well operators for

secondary recovery of oil. The evidence showed that the applicant did not possess the legal right to use the wells which were to be the source of the water delivered for flooding purposes, and that it had not acquired all of the right of way needed for the pipeline which would deliver the water. It was also apparent that the company had not obtained the consent or franchise of the county involved. The amounts of water reasonably anticipated to be delivered to prospective customers had not been shown, nor had the reasonableness of the price per barrel rate to be charged been justified.

The commission concluded that the service to be rendered was of such restricted nature and usable by such a limited group as to negate any conclusion that it was to be rendered to the general public.

Furthermore, the commission said, public utility service ordinarily contemplates service of a reasonably stable nature which is not speculative and for which the economic feasibility can be projected with some degree of accuracy for a reasonable time into the future.

The commission concluded that it would be contrary to the public interest to speculate with the applicant on the outcome of its operations. Even if the operation were successful, and the record cast out on such an assumption, it was apparent that the service would be needed for only a comparatively short time. This factor also prohibited the issuance of the requested certificate.

The operation proposed was held not to be a public utility subject to certification. *Re Coyote Water Co. Case No. 574, April 25, 1961.*

Convenience, Yes, but No Necessity

THE Minnesota supreme court affirmed a judgment which upheld a commission order denying an application for a common motor carrier certificate. The court pointed out that the issue of public convenience and necessity for proposed service was one of fact for the commission. The term "necessity" as used in the statutes, contemplated a definite public need for a transportation service for which no reasonably adequate public service existed.

The mere fact that a service might be convenient, as testified to by a number of shippers in the case, would not meet the requirement that there be both public convenience and necessity. Almost every additional service is a convenience, the court pointed out. But mere convenience does not satisfy the statute.

The evidence was held sufficient to substantiate the court's affirmance of the commission's denial of the certificate application.

Scope of Review

The court's function in reviewing a commission order is to determine whether the order was reasonable and lawful or whether the commission exceeded its jurisdiction in light of the evidence before it and subsequent evidence received in the court. The question on appeal to a higher court is not whether evidence reasonably sustains the lower court's findings, but whether all the evidence submitted to the commission and the lower court reasonably sustain the lower court's findings on questions of lawfulness and reasonableness. *Monson Dray Line, Inc. v Murphy Motor Freight Lines, Inc. et al. 107 NW2d 850.*

Certificate Grant Not Justified by Small Number of Shippers and Restricted Area

THE Utah supreme court set aside a commission order granting a motor carrier a certificate to operate between all points and places within the state. The evidence before the commission showed a need for the service within a restricted area and by a small number of shippers. Such evidence was held insufficient to support the certificate grant.

This conclusion was reached although the court pointed to the well-settled rule that it could not substitute its judgment for that of the commission. Commission findings, it said, would not be disturbed when they were supported by competent evidence.

The commission had to take into account the long-range plans for the protection of existing carriers, as well as the immediate convenience of certain members of the public. Common carriers which are expected to maintain regular service for the movement of freight, in whatever quantities offered, to and from all points on specified routes cannot operate economically and efficiently, the court said, if other carriers are permitted to invade such routes for the sole purpose of handling special commodities on an irregular route basis. *Milne Truck Lines, Inc. et al. v Utah Pub. Service Commission et al. 359 P2d 909.*

Certificate Issued Where Existing Service Inadequate

THE Ohio supreme court sustained the commission's authority to issue a new motor carrier certificate upon a finding that existing carriers, except for one, had failed to comply with an order to improve their service. It was no valid objection that the commission had not canceled any of the certificates of the noncomplying carriers. There is no mandatory language in the statute requiring such prior cancellation, it was noted. The court found nothing unlawful about this action. *Marks Transfer & Storage Co. v Ohio Pub. Utilities Commission, 172 NE2d 12.*

Refusal to Terminate Rate Proceedings Not Reviewable

A FEDERAL appeals court dismissed a petition for review of orders of the Federal Power Commission which denied motions of Sun Oil Company to terminate rate proceedings.

Sun had put several rate increases into effect and was collecting them subject to refund. Proof had been taken in § 4(e) proceedings, but the investigation had not been completed at the time Sun moved for their termination. Sun contended that the commission had terminated other proceedings in like situations and insisted that it was unfair for the commission not to terminate Sun's proceedings.

The court held that Sun's petition dealt with an interlocutory or nonfinal issue. The company may still obtain all the benefits it seeks if the commission's proceedings are permitted to go to a normal conclusion. The refusal to terminate the administrative proceedings was not a reviewable order, the court declared, citing the Magnolia Petroleum Company case (15 PUR3d 364). *Sun Oil Co. v Federal Power Commission, 287 F2d 39.*

Other Recent Rulings

Water Return. A rate of return of 5.5 per cent on a net book value rate base was found adequate by the Wisconsin commission for a municipal water plant both for interim and permanent rates. *Re City of Kenosha, 2-U-5480, March 3, 1961.*

Factors Relating to Discontinuance. The Oregon commissioner pointed out that the factors which have to be considered in passing upon an application for permission to withdraw agency service at a station are the character and size of the population, the volume and nature of business at the station, the ratio of revenue to the expense of maintaining the service, the proximity and accessibility of other stations, and the adequacy of the service proposed to be substituted for the existing service and whether such substituted service would meet the needs of the community. *Re Southern P. Co. RF-161, Order No. 37718, March 6, 1961.*

Declining Return. The California commission granted a water company increased rates which would produce a return of 6.7 per cent on the test year, original cost rate base, but would decline, after one full year's operations, to approximately 6.25 per cent. *Re California Water Service Co. Decision No. 61641, Application No. 42328, March 7, 1961.*

Water Company Return. The Connecticut commission considered a return of 5.95 per cent on a water company's depreciated book cost rate base reasonable. *Re The Terryville Water Co. Docket No. 9997, March 13, 1961.*

Certificate Construction. The Louisiana commission pointed out that, in construing a motor carrier's operating authority, it should accord the generally accepted meaning in the industry to terms used instead of accepting dictionary definitions. *Louisiana Pub. Service Commission v Transway, Inc. Docket Nos. 8285, 8300, Order No. 8338, March 13, 1961.*

Examination of Witness. In a proceeding before a Federal Power Commission examiner in which an intervener presented a witness, the examiner did not abuse his discretion in refusing to allow a second intervener taking the same general position to interrogate the witness, since this was not cross-examination. *Re Tennessee Gas Transmission Co. Docket No. G-19983, March 14, 1961.*

Reparation Powers. The California commission pointed out that, although it was vested with jurisdiction to award reparation in certain instances where a utility had charged an unreasonable, excessive, or discriminatory amount for its product or service, it could not order the payment of reparation upon the ground of unreasonableness in any instance wherein the rate, fare, or charge in question had, by formal finding, been declared by the commission to be reasonable. *Pacific Cement & Aggregates, Inc. v Pacific Gas & E. Co. Decision No. 61716, Case No. 6678, March 21, 1961.*

Passenger Train Discontinuance. The New Jersey commission pointed out that, in passing upon applications for permission to discontinue railroad passenger train service, it was required to place primary emphasis on the requirements of public convenience and necessity, and, secondarily, to consider the financial conditions under which the service was ren-

dered and the entire financial picture of the railroad, as well as the availability of alternate transportation. *Re Pennsylvania-Reading Seashore Lines et al. Docket No. 6010-699, March 23, 1961.*

Return on Depreciated Cost. The Connecticut commission considered a return of 5.5 per cent on a water company's depreciated original cost rate base reasonable. *Re Noroton Water Co. Docket No. 9991, March 24, 1961.*

Security Issue. The New York commission authorized Consolidated Edison Company to issue 750,000 shares of $100 par value 5¼ per cent cumulative preferred stock, the order providing that the proceeds from the sale be applied toward reimbursement of the treasury for capital expenditures, the reimbursement funds to be utilized for the discharge of the company's outstanding unsecured notes or for plant additions. *Re Consolidated Edison Co. of New York, Inc. Case 21578, March 28, 1961.*

Capital Not Invested in Plant. The Massachusetts commission held that capital not yet invested in plant should be excluded from the rate base and no return on such capital permitted. *Re Southbridge Water Supply Co. DPU 13358, March 29, 1961.*

Fixture Rates Not Equitable. The Massachusetts commission stated that fixture rates do not represent an equitable method of assessing water service charges. *Re Salisbury Water Supply Co. DPU 13376, March 29, 1961.*

ICC Power. The U. S. court of appeals held that the Interstate Commerce Commission's already existing authority to enter orders with respect to the minimum percentage of cars in the train required to be operated with power brakes has not been modified by any amendments to the act. *United States v Southern P. Co. 285 F2d 931.*

FCC Rules. The U. S. court of appeals held that the Federal Communications Commission's interpretation of its rules is the ultimate criterion and is entitled to controlling weight upon review, unless it is plainly erroneous or inconsistent with the rules. *Daly v United States et al. 286 F2d 146.*

Immediately Reviewable. The U. S. court of appeals held that denial, to a party in interest, of the right to intervene in a proceeding involving broadcast licenses is an immediately reviewable order. *Interstate Broadcasting Co., Inc. v United States et al. 286 F2d 539.*

Proper Appellate Party. The U. S. court of appeals held that transit riders qualified as persons entitled to appeal from a commission order authorizing a company to increase cash fares. *Bebchick et al. v District of Columbia Pub. Utilities Commission et al. 287 F2d 337.*

Economic Feasibility. The U. S. district court held that, while economic feasibility alone is not sufficient to justify a finding of public convenience and necessity in the grant of a motor carrier certificate, it is a factor which the commission can properly consider in determining the area and localities to be served and in denying a protestant's request for a limitation in the certificate prohibiting the use of the new authority on overhead traffic. *Consolidated Freightways, Inc. et al. v United States et al. 191 F Supp 5.*

Relieved of Contract Obligations. The

U. S. district court construed a contract between railroads and a municipality for the construction, financing, and operation of passenger terminals as evidencing an intent that discontinuance of service to the area involved would relieve a carrier of its contract obligations. *Illinois C. R. Co. et al. v Gulf, M. & O. R. Co. 191 F Supp 275.*

Petition for Rehearing. The U. S. district court stated that a petition for rehearing or reconsideration upon the ground of newly discovered evidence is addressed to the sound discretion of the commission, and reversal of the commission's ruling can only be based upon a clear showing of an abuse of discretion. *Yourga v United States et al. 191 F Supp 373.*

Tariff Construction by Court. The U. S. district court pointed out that courts must not only refrain from making tariffs, but under certain circumstances must decline to construe them as well, since the undisputed training, experience, and technical knowledge of the commission deserve recognition and respect. *Associated Grocers of Colorado, Inc. et al. v Atchison, T. & S. F. R. Co. et al. 191 F Supp 435.*

ICC Appellate Jurisdiction. The U. S. district court held that the appellate division of the Interstate Commerce Commission had authority to affirm or reverse a temporary certificate granted by the Temporary Authorities Board of the commission. *J-T Transport Co., Inc. v United States et al. 191 F Supp 593.*

Previous Unauthorized Operation. The Colorado supreme court pointed out that evidence of previous unauthorized operation is not sufficient to show a need for additional certification in an area. *Donahue (Airlines Cab Service) v Colorado Pub. Utilities Commission et al. 359 P2d 1024.*

Station Agency Discontinuance. The Louisiana supreme court held that the commission improperly refused to allow the discontinuance of a railroad agency station in view of evidence which clearly established that the station had been continuously operated at a loss and that there were other stations in the vicinity which could adequately handle the business of the facility sought to be discontinued. *Illinois C. R. Co. v Louisiana Pub. Service Commission et al. 127 So2d 178.*

Additional Certificate Unwarranted. The Louisiana supreme court held that the granting of an additional carrier certificate in an area being served by an existing certificated carrier was contrary to the evidence where it was shown merely that the area had grown in population and industry and that requests had been made upon the applicant for service, and where there was no statutory showing "that the public convenience and necessity would be materially promoted thereby." *Wisdom Moving & Storage, Inc. et al. v Louisiana Pub. Service Commission et al. 127 So2d 188.*

Ultimate Findings Only. The Nebraska supreme court held that a commission order was not void because of the failure of the commission to make basic findings of fact since the commission was only required to make ultimate findings of fact. *Re Young, 107 NW2d 752.*

Irregular Order. The Nebraska supreme court held that a commission order which failed to make findings of ultimate facts was irregular and had to be set aside

upon appeal. *Re Basin Truck Co. et al. 108 NW2d 389.*

Extension Jurisdiction. The New Jersey superior court held that the commission had not been ousted of jurisdiction to determine the propriety of requiring a water company to extend facilities to certain housing developments when the owners of the developments had signed agreements for the extensions and had made deposits required by the company, where the owners, before signing, had petitioned the commission to order the extensions without charge and had reserved their right to litigate the issues before the commission or the courts. *Re Highpoint Develop. Corp. 168 A2d 204.*

Ex Parte Enlargement. The Pennsylvania superior court held that a certificate may not be enlarged by ex parte action on the part of the holder thereof. *T. M. Zimmerman Co. v Pennsylvania Pub. Utility Commission, 169 A2d 322.*

Scope of Review. The Tennessee supreme court held that the fact that the chancery court had been given statutory jurisdiction of proceedings under the common-law writ of certiorari with reference to the public service commission did not have the effect of enlarging that court's jurisdiction as to the limit of the review of the actions of the commission. *City of Whitwell et al. v Fowler et al. 343 SW2d 897.*

Industrial Gas Rate. The Wisconsin commission found reasonable a proposal of a gas company to limit a semi-interruptible rate for large industrial customers to 200,000 therms, rather than 100,000 therms as urged by opposing parties. *Re Wisconsin Pub. Service Corp. 2-U-5508, March 27, 1961.*

Presumption of Conformity. The Tennessee supreme court pointed out that the presumption that the commission has regularly and correctly followed statutory directives in good faith and in conformity with precedent stands until overcome by satisfactory evidence to the contrary. *Blue Ridge Transp. Co. et al. v Pentecost et al. 343 SW2d 903.*

Separate Links in Through Route. The California commission pointed out that, although there is precedent for granting two different highway common carriers operating rights comprising separate links in a through route, the commission should, in applying the doctrine, carefully guard against fleeting accommodations between carriers solely for the purpose of securing rights they could not individually obtain. *Re Oregon Nevada California Fast Freight, Inc. et al. Decision No. 61727, Application Nos. 41429, 41430, March 28, 1961.*

Expense Amortization. The cost of cleaning the mains of a water company, regarded as delayed maintenance, was required by the Missouri commission to be amortized for rate-making purposes over a period of ten years, though the actual cleaning work would be performed over a five-year period. *Re Warrensburg & Pertle Springs Waterworks Co. Case No. 14,491, March 28, 1961.*

Depreciable Property. The New Jersey commission held that depreciation should be taken on all depreciable property, including that provided by customer contributions and advances. *Re New Jersey Water Service Co. Docket No. 6012-906, March 30, 1961.*

Proof of Prejudicial Rate. To establish undue prejudice and preference, said

the Wisconsin commission in ruling upon rail freight rates, there must be a showing that the complainant is actually injured by reason of the rate difference in his competition with the industry alleged to be preferred. *Wisconsin Waterways & Rail Traffic Asso. v Ahnapee & W. R. Co. et al. 2-R-3874, 2-R-3876, March 30, 1961.*

Competitive Applications. The Missouri commission denied a certificate to a small newly organized telephone company to serve the area theretofore inadequately served by its predecessor, a mutual company, where the applicant presented no substantial evidence to show that it could actually erect and operate a system capable of providing satisfactory service; the area was therefore opened to a large company which was able and willing to construct necessary facilities and provide adequate service. *Re Midwestern Teleph. Co. et al. Case Nos. 14,-613, 14,603, March 31, 1961.*

Transit Fare Increase. The Pennsylvania commission granted a transit company's request for permission to increase fares upon a showing that additional revenue was necessary to meet increased wage and other operating costs and thereby preserve financial stability. *City of Pittsburgh et al. v Pittsburgh R. Co. Complaint Docket Nos. 17328, 17329, 17332, April 3, 1961.*

Uniformity of Rates. The California commission stated that substantial uniformity of rates among warehousemen operating in a metropolitan area is a business necessity, dictated by the force of competition, notwithstanding that some would be operating at a loss and others would be earning an excessive profit. *Re Alco Transp. Co. et al. Decision No. 61781, Application No. 42592, April 4, 1961.*

Restoration of Telephone Service. The New Jersey commission upheld a telephone company's right to refuse to restore service where the record showed that a proper governmental authority had notified the company to discontinue service because of illegal gambling on the premises and that the same governmental authority objected to restoration of service. *B. Zazzali & Co. v New Jersey Bell Teleph. Co. Docket No. 611-35, April 6, 1961.*

Railroad Agency Discontinuance. The New Jersey commission pointed out that it was required, in cases involving discontinuance of railroad express agency service, to give primary consideration to public convenience and necessity and to treat the financial results of the operations involved as matters for secondary consideration. *Re Railway Express Agency, Inc. Docket No. 612-88, April 6, 1961.*

Extended-area Service. The Wisconsin commission approved a telephone company's application for extended-area service at increased rates upon a showing that the service was required by public convenience and necessity, that it would not impair the efficiency of other service, that it would not provide facilities in excess of probable future requirements, and that, when placed in operation, it would not add to the cost of the service without proportionately increasing the value or available quantity thereof. *Re General Teleph. Co. of Wisconsin, 2-U-5525, April 7, 1961.*

Where Is The Electric Utility Industry Going From Here?

The "New Frontier" about which we hear and read so much these days in connection with the new administration in Washington is a concept which embraces a good many problems outside of Washington. Particularly for the electric light and power industry challenges of change, expansion and continued inflation will require the best thinking and leadership which the industry can muster to maintain the spectacular gains throughout the rest of the sixties which have been manifested in the previous decade.



Photo Courtesy: Northern Indiana Public Service Co

Francis X. Welch, Editor

WHEN the Edison Electric Institute meets in New York, June 7, 1961, for its annual national convention, the theme selected for this gathering will appear most prophetic "Targets for Tomorrow in Electric Power." The idea of a target is a 4-dimensional goal combining objectives of time, place and impact. The electric utility industry faces provocative question marks with respect to all three of these objectives. It is not only a question, therefore, of where the electric utilities will go from here, but how soon and for what overall purpose.

The following compendium of views expressed by presidents and other officials of electric utility companies at the executive level, responding to an invitation from the editor of PUBLIC UTILITIES FORTNIGHTLY, reveals a very sensitive awareness of industrial management to the need for staking out appropriate goals and keeping a timetable for reaching these goals.

Even a casual survey of the following collection of messages from these company leaders gives the readers a sense of urgency as well as a confidence in accomplishment. Undoubtedly The "New Frontier," in the popular political usage, has resulted in new and important questions for electric utility company management.

It is for this reason that this editor decided to depart somewhat from the previous format in asking for contributions to this compendium of executive viewpoints. Whereas, in former years, the emphasis has been on the experiences and plans of individual companies, this year, 1961, our executive contributors were asked to give our readers the benefit of their views in a more general way. A number of the following statements reflect the enthusiasm with which our contributors embraced this idea of becoming guest editors, so to speak. Others, have decided to confine their remarks to their own operations as before. In either event, the result has been a collection of thoughtful commentary which readers both inside and outside the electric utility industry will not want to overlook. It is a rare opportunity of sampling some of the best thinking in a highly specialized and difficult field of operation.

It is not surprising that the threat of government ownership, whether by intervention or outright competition, is viewed as the number one threat on the horizon. This has been true in the utility industry field for at least three decades. But the same challenge appears today on a broader range. It is no longer simply a question of the federal government or local political subdivisions getting more and more into the electric utility business. That is happening too, of course. Yet this conflict has now moved into adjacent territory such as the future rôle of the federal government in the development of nuclear power plants, or in promoting the establishment and expansion of national grid systems of transmission lines, such as occurred in Great Britain prior to the nationalization of the electric utility industry in that country.

Yet, grave as these problems may appear, there is a surprising amount of optimism, rugged individualism and a confidence in survival and expansion of the electric utility industry, as an industry. Some of the following statements which go into particular problems of individual

(*Continued on page* 58)

companies must, of course, be read in text, in order to be appreciated.

The overall inflationary impact, as in former years, is an area of continuing concern. How to provide an increasing amount of modern plant in competition with other industry in the money markets is a corollary matter commanding the attention of a number of our company executive contributors. We are sure our readers will find the whole collection wor while as well as an unusual asse blage of various points of view, of which bear on the central probl of where the electric utility indus is going from here.

American Electric Power Company, Inc.

New York, New York

PHILIP SPORN, *President*

1961 Performance on the System

DESPITE the burst of economic activity which followed the end of the steel strike in November, 1959, and carried through the first quarter of 1960, the year 1960 was, on the whole, a recession year, and the recession carried through the early months of 1961. By the end of February of this year, however, we began to see signs of recovery; although the speed and magnitude of the recovery are still in some doubt, the signs of an upturn have recently been multiplied. Automobile sales since March have been showing an encouraging rise. The Federal Reserve Board Index of Industrial Production, which had been declining steadily since July, 1960, probably reached its low point in February of this year, and since then has shown modest, but nevertheless definite, upturns. Steel production, an important factor in the economy of the AEP service area, fell substantially to below 50 per cent of capacity in the latter months of 1960, but early this year it climbed to slightly above 50 per cent of capacity and more recently has exceeded 60 per cent. There are numerous other signs of economic resurgence in 1961 that can be cited.

In 1960, despite the unfavorable economic circumstances, especially in some industries, such as steel, which are significant factors in the AEP service area, the AEP System once again demonstrated its strong resistance to recessionary pressures and showed increases in system sales, revenues, and earnings of 5.2 per cent, 4.5 per cent, and 9.6 per cent, respectively. Even at the low point of the recession, reached in the first three months of 1961, system input, a measure of the kilowatt-hours made available to our customers, fell only 3.5 per cent below that of the same period of 1960, when we were experiencing the very favorable effects of the recovery from the steel strike. Since the latter half of March the system input has narrowed the gap and should soon pass the figures for the comparable period of last year. We expect that the economic recovery will continue and that the system input will exceed 1960 levels by increasing amounts as the business year develops.

With the placing into commercial service of the 500-mw units Breed No. 1 and Sporn No. 5 in the latter half of 1960, capacity is fully capable of meeting the expected 1961 peak demand of 5,300 mw, still allowing a reserve of about 22 per cent.

The average realization in 1961 is expected to fall from 12.2 mills per kilowatt-hour in 1960 to 12.0 mills. Despite the steady decline in realization over more than a decade—and indeed the purposeful efforts to achieve this decline in realization—earnings have continued to rise.

The development of the AEP S tem is being planned on the basis the fundamental assumptions that economy will continue to mov alo dual lines of providing for natio defense while expanding strengthening the peacetime econo In that process more energy, particularly more electric energy, w be required. The area served by t AEP System will continue to u in the future as in the past m electric energy per capita than t country as a whole.

On the basis of these assumptio the schedule of system expansion h not been materially retarded desp the recession of the past year, and plan to add between now and the e of 1964 an additional 1.5 million ki watts to the existing 6.5 million ki watts. This additional capacity will in four major developments: t addition of a third 225,000-kilow unit, based on cooling towers, at t Clinch river plant in southweste Virginia; the 265,000-kilowatt B Sandy plant also utilizing a natur draft cooling tower, the first of i kind in the U. S., in eastern Ke tucky; the pumped-hydro develo ment at Smith Mountain, Virgini with a capability of 440,000 kil watts; and Tanners Creek Unit N 4, recently announced, with a cap bility of 580,000 kilowatts. With th expansion in generating capability are also expanding our transmissio distribution, and general facilities.

On the AEP System we are pr paring for an acceleration of grow through further development and i tensification of efforts in all lines our business, especially sales a engineering. Our sales promotio budget will be expanded by $1 millio particularly to step up our promotio of electric heating and the all-electr home. Electric heating sales ha been gaining momentum for the pa several years, with a slight he itatio during the recent recession, and w expect to continue to accelerate th momentum.

Nor will we neglect further r



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rch and development. Our research and development efforts in the d of energy generation, transmission, and distribution will be intened even further, and we expect t the will continue to bear fruit he form of better facilities having er capital costs and capable of viding more efficient, economical, l reliable service to our customers. We reject categorically the idea t has been all too extensively ed bout, that we are at the end the era in the electric utility instry in which major economies be obtained by further improvents in technology. On the AEP stem this has been untrue in the st and we believe it continues to a dangerous assumption on which base further growth and develop- nt. We continue to look forward h confidence to building better nerating plants, better transmission stems, and better distribution sysns and to being able to operate m so as to produce electric serv- more economically to provide our stomers each year with more serv- per dollar of revenue.

If we, and indeed the entire elec- utility industry, are to be able carry through such ambitious programs it is essential that we continue to attract highly qualified people. It has been gratifying during the year to note the progress that has been made in stimulating an increased awareness of the vitality of the electric power industry and power system technology as an exciting area for young, bright and ambitious people to work in. We hope to pursue this effort further, not only this year but in the years to follow.

As the momentum of economic recovery accelerates throughout the remainder of 1961 we anticipate that our performance in sales and revenue will continue to improve so that for the year as a whole our sales will show an increase of approximately 7 per cent. Revenues will increase by a slightly smaller percentage, and earnings [and earnings per share] should show increases commensurate with the increase in sales and revenues to produce overall a marked improvement over the on the whole satisfactory record for 1960.

It is worth noting again at the end of this latest recession the resistance of the electric utility industry to recessionary pressures. Of course, it is especially gratifying for us in the AEP System to observe this kind of recession resistance in our own operations. This excellent performance turned in by the industry in this latest recession calls attention once again to the fact that, despite the talk often heard about growth industries, there has been a failure to fully appreciate the record of growth of the electric power industry, which has made it in the past and continues to make it the outstanding example of growth in the entire American economy. Even more important, there is no industry which, taking into consideration past history, has such a solid basis for confidence that substantial growth is ahead for it if it continues the dynamic approach to its opportunities and potentialities and to the solution of its problems that it has followed in the past.

On the AEP System we are especially conscious of this, and last year's performance, the improvements in our operation which made it possible, and other developments in science and technology affecting our particular sphere of operations give grounds for judgment that the opportunities for growth and service to our area and to our customers have never been greater.



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1959	249,200	1970	425,000
1960	261,400	1975	506,800

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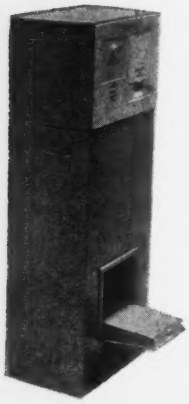
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JAMES P. HAYWARD, *President*
Competing with The New Frontier

ON April 14, 1961, I sent President John F. Kennedy the following telegram:

> "Some things are best done or can be done only by federal government. One such thing is outer space research and development. Instead of competing with taxpaying private enterprise in those fields where private enterprise is eminently qualified such as electric power production and distribution and numerous other fields adequately served by private enterprise, I respectfully urge that our federal manpower and financial resources be thrown into an allout effort to recapture the lead in scientific fields. We are smarting once again from the beating we have taken from those whose philosophy demands our eventual national submission. Can our federal government afford to compete with its own citizens and enterprises, from whom its own tax revenues are derived, while such global needs for protection and progress receive wholly inadequate attention?"

Perhaps some of the FORTNIGHTLY readers would be interested in the reasoning which prompted such a telegram.

Today there are more than 8,000 area development agencies of all kinds in the United States competing with each other for new industries, new businesses, new tax ratables, new jobs, new payrolls and new people. The public utilities of our nation co-operate and, in many areas, take the leadership in this activity.

Virtually, millions of dollars are being spent every year in personnel and in paid advertising of all kinds to promote this new business.

Communities all across the land are also spending millions to improve their areas in order to make them more attractive to expanding industries, large and small. While the competition is keen and the results mixed with many successes and many failures, this is truly free enterprise in action except when our federal government competes with its own citizens and taxpayers in such work.

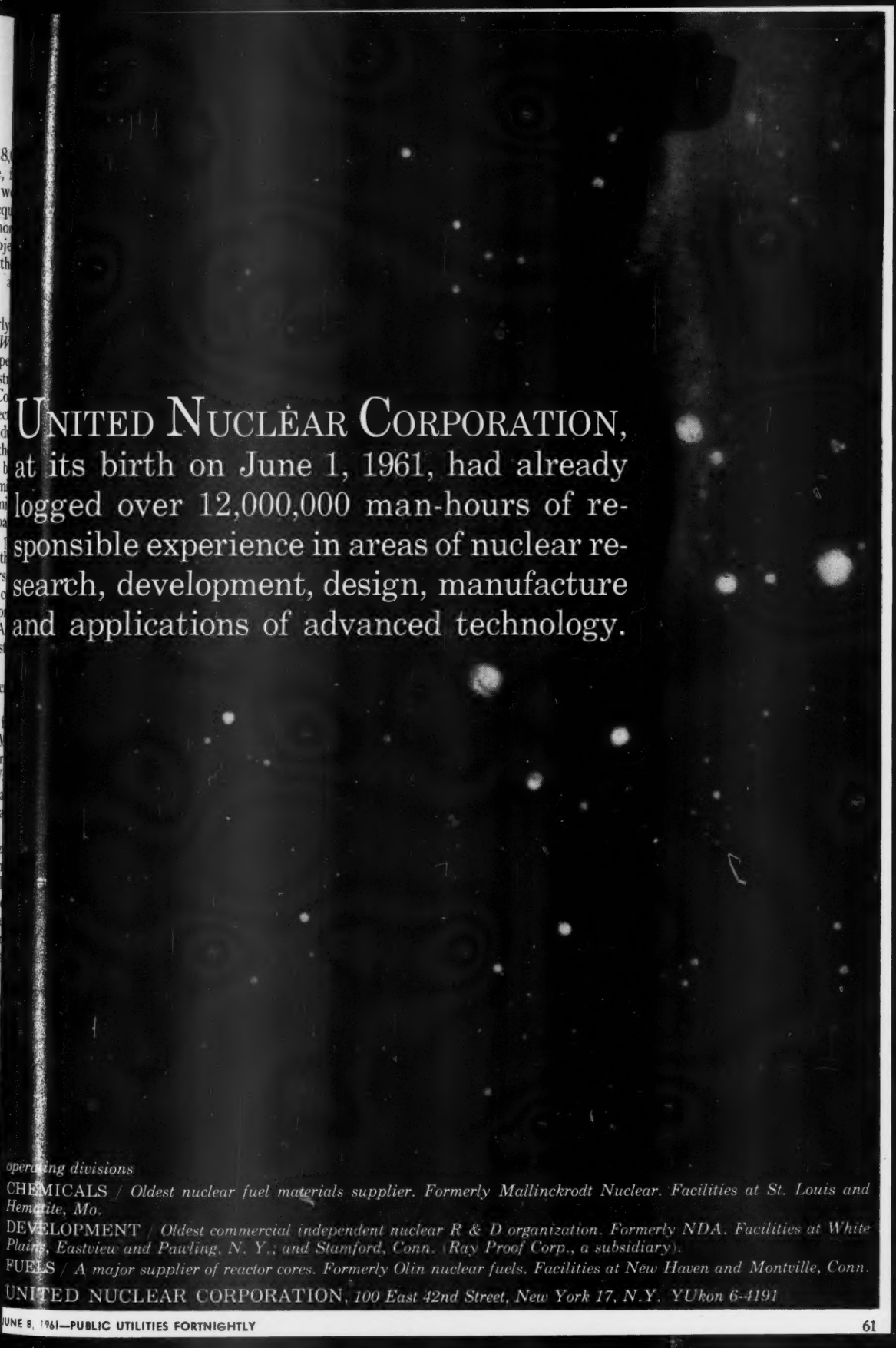
Our government's encroachment into private business represents more serious competition than all 8,0 agencies combined. For example, people in area development w realize how public power tax ineq ity and interest-free federal mo invested in public power proje such as the Tennessee Valley Auth ity compete directly for new expanded industries.

Advertisements appear regularly *The New York Times, The W Street Journal* and other newspape inserted by the Tennessee Indust and Agricultural Development Co mission and other TVA-connec agencies in an effort to entice ind tries from the north. Some of th ads point out that industry can b electric power as low as 6.02 m per kilowatt-hour. This is alarmi because an investor-owned compa like ours pays almost this much kilowatt-hour in taxes alone. In oth words, by tax subsidy, TVA offers sell power at less than half the c a tax-paying company incurs to p duce electricity at the bus bar. A they are getting this new indus too.

Last November A. R. Jones, me ber of the Board of Directors TVA, wrote a series of articles the *Christian Science Monitor.* M Jones said in part—"The industr use of power in the Tennessee V ley has doubled in the last eight yea and among TVA customers there some of the best known names industry." He stated that a doz new plants purchased almost $3 m lion worth of power apiece. named a few of these compani Among them are some of our larg free enterprise companies: For Chrysler, Alcoa, Reynolds, Goodye Monsanto and DuPont.

Mr. Jones' statement certain must have disturbed many officia labor leaders and business leaders New England, New York, Pennsy vania, Michigan and here in our ow New Jersey. Particularly becau they realize that the tax avoidan and the interest-free federal mon competes with their states econo ically.

President Kennedy has a wonde ful opportunity to make The Ne Frontier stand for more than ju a political slogan by stopping unfa federal competition with its ow citizens.


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NEIL G. SIMPSON, *President*

THIS is the "Land of Infinite Variety," where the New Frontier meets the Old West. Pleasantly warm summer days and year-round cool nights make the Black Hills region a tourist mecca. We annually record over two million visitors, who spend nearly $80 million. With the completion of many sections of the interstate highway system, our area becomes more readily available as a vacation land.

Principal industries in the area are cattle and sheep raising, farming, milling, meat packing, production of cement, bentonite, feldspar, stone and gravel, the mining of gold, coal, uranium and other minerals, lumbering and oil production and refining.

The 1960 population of the nine counties we serve was 130,000. The population of our largest city—Rapid City—increased 67.5 per cent in the past decade, and the aggregate increase of our 18 incorporated cities was 36.2 per cent. In way of comparison, the increase for the entire United States during the same period was 18.5 per cent.

We have budgeted $3.3 million for additions and improvements to our electric facilities during our fiscal year, which ends October 31, 1961. It is anticipated that engineering and the purchase of rights-of-way will be completed for a new high voltage transmission line from Rapid City, South Dakota to Chadron, Nebraska. This will give us an interconnection with utilities to the south and west, which will permit participation in pooling operations.

Construction of the multimillion dollar Titan missile launching facilities is on schedule. Completion is less than a year away. Preliminary planning is going ahead for the installation of three squadrons of solid fuel Minutemen. This is estimated to be a $60 million project of the Defense Department. After completion, and as they become operational, these projects will provide a continuing contribution to our area's economy.

We are maintaining a vigorous sales program. Acceptance of the "Medallion Home" has been widespread; we anticipate that 40 per cent of the homes built in our area t year will go "Medallion." With recent announcement of a new r for electric heat, we are optimis that the all-electric home will g much greater momentum.

Our newest generating plant—Ben French station—is in comm cial operation, adding 22,00 ki watts to our system. All of ou ma generating plants are steam turbi generators, using low cost sub- tuminous coal as fuel. This coal mined by the company's subsidia near Gillette, Wyoming. Estimates coal reserves owned or under lea are over 50 million tons. The subsi ary is currently mining less th 500,000 tons annually. Over 90 p cent of the mine's production is ut ized in our power plants.

General business conditions ha been fair to good. This area has n experienced a sharp recession li many other parts of the nation. A though range and crop conditions a dry, prospects for a good year a excellent. The future looks brig and we expect another record ye

Boston Edison Company

Boston, Massachusetts

CHARLES F. AVILA, *President*

SEVENTY-FIVE years ago, Thomas Alva Edison closed a switch at Boston Edison Company's first power plant to provide the 800-watt capacity of the station to the company's initial customer. This year on May 1st, the company's newest generating unit, with a capability of 157,500 kilowatts, began commercial operation.

Today, Boston Edison Company has a total generating capability of 1,384,300 kilowatts, and serves a populace exceeding 1.5 million people in New England's largest, and the nation's seventh largest, metropolitan area.

Kilowatt-hour sales within the company's retail service area showed first quarter improvement of better than 7 per cent over the comparable quarter last year. The behavior of load trends in 1960 favorably reflected the economic stability of the area when the business let-down in other areas was more pronounced. Current indications point to a continuing healthy growth in the commercial, industrial and residential business classification.

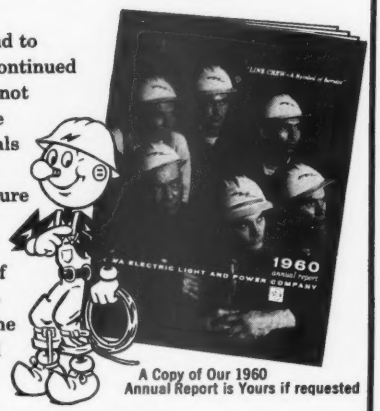
Over the past decade communities, suburban to Boston, have developed substantially after burgeoning electronic and research industries have concentrated within the company's service area. This is most significant on and near Circumferential Highway 128.

Important progress in the resurgence of Boston will be realized this year. Demolition work has been started at the site for a $50 million government center and reactivation of construction at the huge Prudential center is imminent. A $90 million urban renewal program is moving beyond the planning stage, a second vehicular tunnel beneath the harbor, housing units in the extensive west end development and a substantial portion of the new garage facility under Boston Common, will be completed in 1961. Numerous other new commercial and residential projects are under construction. To keep pace with this substantial growth, Boston Edison is establishing a new 110,000-volt underground transmission link between its inner-ring transmissi system and downtown Boston.

Electric utility systems in the Ne England area, where the concept interconnection was pioneered mo than fifty years ago, are seeking o every possible advantage of furth commercial integration for great efficiency and the mutual benefit the interconnected systems, their cu tomers and stockholders. Co-oper tive planning in this manner will le to the selection of generating units a size to accommodate areas inste of single system demands. Existi transmission ties between the i vestor-owned utilities throughout th six-state area will facilitate this pr gram.

1960 SALES OF OUR SERVICES SET NEW RECORD HIGHS

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California-Pacific Utilities Company

San Francisco, California

E. K. ALBERT, *President*

As the policies of The "New Frontier" unfold, a change which will have an adverse effect on all investor-owned utilities, and in the long run on their customers, is apparent. This is the abandonment of the "partnership plan" for full development of electric power generation and transmission which was put into effect in 1952. Prior to that time, the Pacific Northwest experienced several power curtailments, and was continually on the brink of a shortage. Today, after eight years of co-operative development by all segments of the electrical industry, the area enjoys a comfortable surplus of power.

Under the "partnership plan" investor-owned utilities in Utah, Wyoming, Colorado, New Mexico, and Arizona developed a comprehensive plan for an integrated transmission system to be built partly by private capital and partly by government funds. This plan provides for delivery of the power from federally-owned hydro plants on the upper Colorado river with a minimum investment of federal funds. It provides for early full usage of the output of these plants and for back capacity from steam plants in periods of water shortage. This plan has been rejected by public power advocates in favor of a limited network of government-owned transmission lines, part of which will duplicate existing lines.

This shift of policy is a step backward and is not in the public interest.

Carolina Power & Light Company

Raleigh, North Carolina

LOUIS V. SUTTON, *President and Chairman*

DESPITE contrary trends in many other regions, 1960 was a good year for Carolina Power & Light Company. Prospects for the future appear equally bright.

The company's plant expansion kept pace with unprecedented industrial growth in the 300 communities it serves. Many factors — including intangibles— figure in the future.

Rather than my words, listen to those of an industry which located two large new plants in the Carolinas recently:

> Locations in the Carolinas were selected after study of all factors that contribute to the success of each activity. Each location offers specific advantages for the unit which will be built there. Some of those already have been cited. Another worthy of mention is community attitude. Both projects were launched in an atmosphere of outstanding good will and understanding which will work to the mutual advantage of the corporation and the communities involved.

"Community attitude," "atmosphere of outstanding good will" and "mutual advantage" are not our words. They are the words of industrialists who are beginning to understand and appreciate the "favorable climate for industry" which the Carolinas has claimed all along.

These will still count as invaluable assets for the future.

The measure of their worth last year was an all-time record of industrial growth in our company's service area: Plans were announced for the building of 69 new plants and 98 additions representing an aggregate investment exceeding $100 million.

To serve this and other new demands, the company spent $26.8 million on new construction last year and earmarked $112 million for new plant construction in 1961-1963 inclusive, largest building budget in any three-year period in our history.

During 1960, the company engaged simultaneously in building two major steam-electric units and one hydro-electric unit—not to mention participation in a four-company nuclear power project at Parr, South Carolina. Ground was broken at Goldsboro, North Carolina, on May 10 for a unit which we understand will be the world's first coal-fired steam power plant to be operated entirely by an electronic computer. This will be an extension and enlargement upon automation which our company installed in lesser degree at the H. B. Robinson steam-electric generating plant which was dedicated near Hartsville, South Carolina, May 1, 1960, in honor of our vice-president and general manager.

New industrial load was balanced by equally significant gains in residential, farm and commercial demands. Residential use averaged 7,346 kilowatt-hours for 1960, stimulated by an all-electric house heating rate made effective at mid-year to promote heat pumps and resistance heating.

Substantial gains in farm use of electricity are expected in the future as the result of a step up of our agricultural development activities beginning May 1st, as a complement to the company's industrial promotion. The program seeks to boost farm income through efficiencies and economies of greater electrical mechanization, at the same time boosting the farm demand for power.

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Central Hudson Gas & Electric Corporation

Poughkeepsie, New York

LELAN F. SILLIN, JR., *President*

THE growth of Central Hudson's business in 1960 continued at a satisfactory rate, and the company's record sales, revenues and earnings reflected the generally good economic conditions prevailing in our service area throughout most of the year. Although in the latter part of the year and in the first quarter of 1961 business was affected to some extent by the nationwide economic slowdown, we look forward to improved conditions during the balance of 1961.

The company's service area is in a strategic geographical location, covering 2,500 square miles just north of New York city and offering excellent transportation facilities, proximity to the great eastern urban markets, attractive living conditions for prime industrial and commercial uses. In the past decade, this combination of favorable factors has made the Central Hudson Valley one of the fastest growing economic regions in the Northeast. The U. S. Census shows that for the period 1950 to 1960 the population in the company's service area increased at a rate more than twice that of New York state and the northeast United States and almost again as fast as the nation as a whole. With this remarkable population growth has come a significant transformation in the character of the region and industry and commerce have become major elements in the economy of the area.

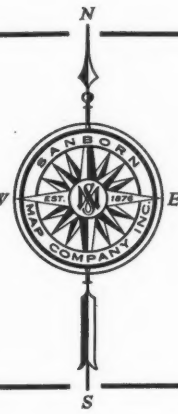
In 1960, two area development projects were initiated which will be highly important to the continued economic growth of the region. They are a $12 million north-south arterial highway through Poughkeepsie to the mid-Hudson bridge and the $22 million Newburgh-Beacon bridge, with highway connections to the New York state thruway on the west side of the Hudson river and the Taconic parkway on the east side. Governor Nelson A. Rockefeller, at ceremonies marking the start of construction, stated that the new bridge and its highway connections "will stimulate the commercial and industrial development of Newburgh and Beacon, of Orange and Dutchess counties." The counties of Orange and Dutchess seem destined to gain population at continued rapid or accelerated pace because of their inclusion in the outer ring of the New York metropolitan area. A recent population forecast of the New York Regional Plan Association indicated an approximate doubling of population in these two counties by 1975.

The area is experiencing a continuing expansion of existing industries and a further trend toward diversification as new types of industries are locating in the region, and the company is pursuing an aggressive area promotion program to help insure the optimum development of the markets for its gas and electric services. In a step designed to assist the company's residential customers in obtaining the advantages of all-electric living, new reduced electric rates were made effective in the middle of 1960 and, together with an intensified sales program, are expected to result in greater acceptance of electricity for water heating and househeating.

The company is continuing its participation in the statewide electric transmission and power pooling studies of Empire State Utilities Power Resources Associates and has increased its support of research in the field of atomic power. In 1960, Central Hudson joined six other New York state electric companies in the formation of Empire State Atomic Development Associates to conduct an intensive nuclear research program looking toward the design and ultimate construction of a large atomic electric generating station in New York state.

As a major step in the advancement of its program to meet the long-range electric power requirements of the growing Central Hudson Valley, the company in 1960 acquired the Cruger's island property 22 miles north of Poughkeepsie on the Hudson river, and the company's consulting engineers have found the site suitable for the installation of up to 2 million kilowatts of electric generating capacity.

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Central Louisiana Electric Company, Inc.

Alexandria, Louisiana

T. M. HAUER, *Vice President*

A UNIQUE feature in the operation of Central Louisiana Electric Company, Inc. is the relationship between its electric and gas departments. Being situated in Louisiana, the company uses natural gas for boiler fuel in its electric generating plants. Through merger with Gulf Public Service Co., Inc. in 1951 and by subsequent purchases, the company acquired gas distribution systems in Lafayette, Pineville, Winnfield, and other communities adjacent to the integrated pipeline system of its subsidiary.

The company recognized, at an early date, the growing gas requirements for its generating plants and distribution systems and the rapidly increasing cost of gas at the well head. In 1954, the company embarked on a program providing for the development of its own natural gas supply. To adequately handle this program two subsidiaries were organized, namely, South Louisiana Production Company, Inc. and Louisiana Intrastate Gas Corporation. The former company was organized to handle matters pertaining to production and the latter company to handle matters pertaining to gas transmission.

Although the company's venture in the natural gas field is still in the development stage, during the first six years Louisiana Intrastate Gas has developed through purchase and construction an integrated pipeline system consisting of approximately 500 miles of pipe with connections to 18 sources of natural gas supply. The pipeline, which extends from the Monroe field in north Louisiana in a southerly direction to Houma in south Louisiana, is connected with the company's two principal electric generating plants, namely, the Coughlin plant at St. Landry and the Teche plant at Baldwin.

The pipeline system, throughout its length, is located in the prolific oil and gas producing areas of Louisiana. The reserve life index of the gas committed under the various purchase contracts is approximately seventeen years. The pipeline system is intrastate in character which is advantageous in connection with the purchase of gas supply.

The two electric generating plants, which are approximately 90 miles apart, are connected to the same pipeline system, which provides a versatile fuel supply that can readily be switched from one area to the other. In addition, the electric generating plants are interconnected by a 138-kilowatt transmission line which permits load to be shifted from one plant to the other to fit system requirements. The combination of the electric transmission line on the one hand and the fuel gas pipeline on the other, produces a flexibility of operation frequently encountered in utility systems.

The peak load on the company's electric system occurs during the summer months whereas the peak load on the gas system occurs during the winter months. The net result is a vastly improved load factor on the gas system which is very important in the negotiation of gas purchase contracts.

The company's natural gas project, though still in the development stage, has reached the point where its advantages and potentialities are apparent. During the year 1960, the total system gas requirements aggregated 24.5 billion cubic feet, of which 7.8 billion cubic feet or approximately 32 per cent, represented the requirements for fuel for the electric generating stations. It is expected that future years will show increased benefits resulting from the unique combination of electric and gas operations.

The Cincinnati Gas & Electric Company

Cincinnati, Ohio

WILLIAM H. ZIMMER, *Executive Vice President*

CINCINNATI, in the sixties, is proving its claim as "The City Closest To America."

Multi-million-dollar improvements in expressways, river and airport facilities are further enhancing the city's position as a market center and thus making it increasingly attractive to industry.

One-half of the nation's business already is conducted within 500 miles of Cincinnati. A 500-mile circle around the city takes in half of the nation's manufacturing payroll, 45 per cent of the population and 42 per cent of the retail trade. Coal, steel and other vital raw materials are at the city's doorstep.

One of the city's major assets is its strategic location midway on the nearly 1,000-mile stretch of the Ohio river, between Pittsburgh, Pennsylvania, and Cairo, Illinois. Low-cost river transportation is being further expedited by construction of a new system of high-lift locks and dams.

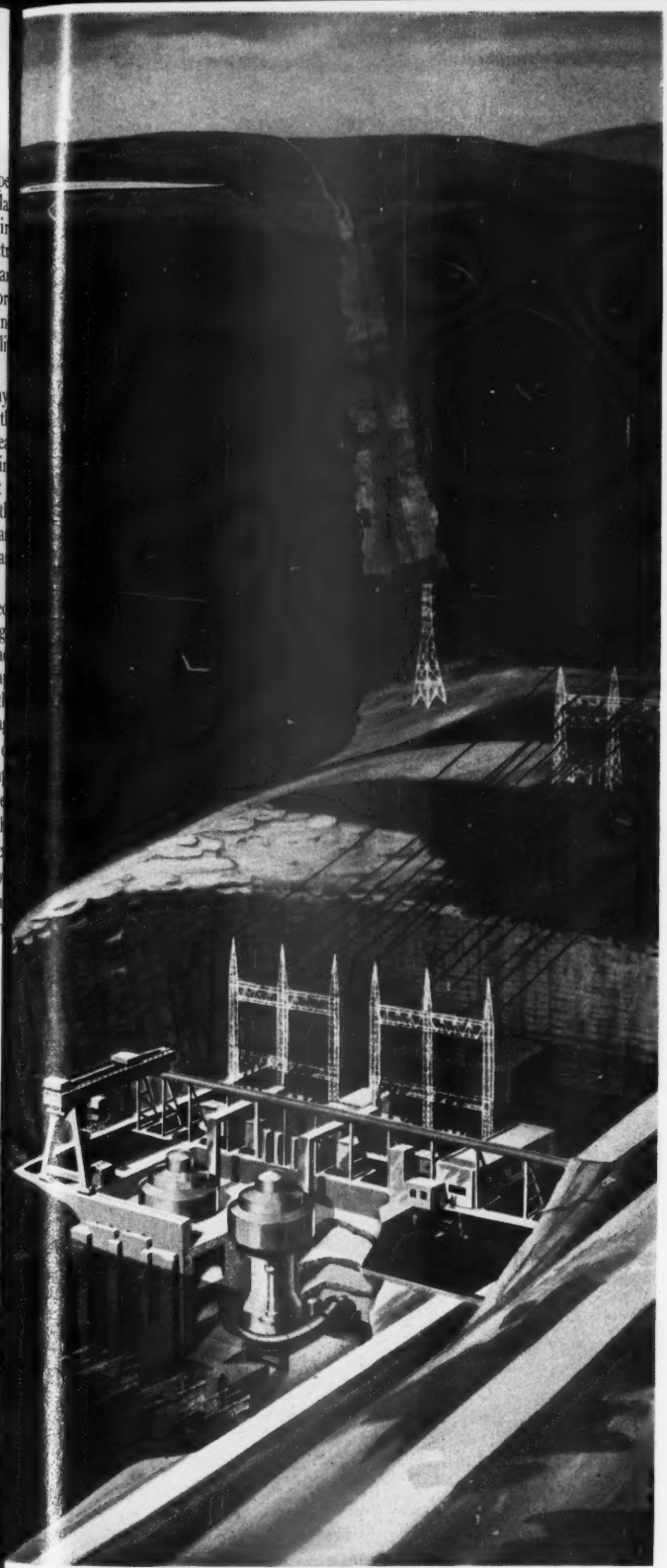
Markland dam, a $78 million project nearing completion, will provide a 95-mile lake for recreational as well as commercial boating in the Greater Cincinnati area.

More than $300 million are being spent on wide vistas of expressways fanning out in all directions to afford easier access and egress to and from the city. A new $17 million double-deck bridge over the Ohio river between Cincinnati and Covington, is being built to link up with the new northern Kentucky expressway. This will place the airport within 15 minutes of downtown Cincinnati.

About $600 million was spent on construction of new plants, offices and additions in Cincinnati in the past ten years. The Cincinnati Gas & Electric Company is placing new emphasis upon its industrial development program to capitalize upon increased interest community leaders are taking in the subject.

There has been a heartening increase in the number of national companies locating headquarters or regional offices in the city.

The Cincinnati Gas & Electric Company is spending about $50 million yearly to assure a plentiful supply of power for all future developments in its seven-county service area. It is confident of the continued progress of the area.



Taum Sauk, the nation's largest pumped-storage power plant, is being built in the Ozark Mountains, 90 miles southwest of St. Louis. It will work like a gigantic storage battery—where stored water can be transformed into electricity during peak hours.

AT TAUM SAUK WATER WILL BE PUMPED UPHILL TO KEEP COSTS DOWN

Union Electric's Taum Sauk power plant scheduled for completion in 1963 will bring more electricity to Union Electric's growing service area. On a granite mountaintop in the Ozarks, a 50-acre reservoir is being built. 800 feet below, a second reservoir is being created. A tunnel 26 feet in diameter and more than a mile long will be drilled through the mountain to connect the reservoirs.

At night, when the need for electricity drops, power from otherwise idle steam equipment in St. Louis will drive the combination pump-turbines to force water uphill to the 50-acre reservoir. During daylight hours, when the need for electricity is greatest, water will flow downhill through the pump-turbines which, when reversed, generate 350,000 kilowatts of electricity.

During the past 10 years Union Electric spent $452 million, nearly doubled its power output. Taum Sauk is part of the additional $290 million earmarked for expansion during the next 5 years.

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The Cleveland Electric Illuminating Company

Cleveland, Ohio

ELMER L. LINDSETH, *Chairman of the Board*

THE electric power industry, in common with all other American business, faces a problem which is already serious and shows signs of becoming critical. The problem is, simply: How can the industry find and supply enough qualified men to fill the rapidly growing number of executive positions?

A measure of general business growth during the past decade has been the addition of 4,000 companies to the ranks of those with assets of over $10 million. That same growth has created 44 per cent more executive jobs.

This will continue through the sixties. By 1970, it is estimated, there will be at least 40 per cent more executive positions than there are today. And two-thirds of the executives now working will have left business life.

Simple arithmetic, then, shows the magnitude of the problem our industry shares with business in general. Of today's executives, only one in three will still be working in 1970. Somewhere we must find, not two, but three more executives to work alongside him. And we have less than ten years in which to do it.

Not only will executive jobs increase in number, but the nature of many of them will change to meet alterations in our business and social structure. And all executive jobs will become more complex and demanding. The successful executive of 1970 will be a man of even higher calibre than our best today.

Where will such men come from?

Most of them are not today identifiable by conventional standards. It is by no means even apparent, in most companies, who will be the 1970 president. The average age of company presidents, according to a recent survey of 615 leading companies, is fifty-seven years, while the vice presidents are, on the average, in the mid-fifties. The president of the typical 1970 company is now somewhere in the ranks—or somewhere outside of the company altogether.

Of one thing we can be sure: qualified executives, in sufficient quantity to meet demand, will not just appear as if by magic. We will have to work at finding them.

If we are to ward off executive starvation, then, several immediate steps are necessary. We should:

- Forecast future executive positions, not only numerically but qualitatively.
- Begin identifying potential executive material in the ranks. Concurrently, company recruiting programs should be oriented to future executive needs. Nor should aid to education be overlooked as a sound investment in tomorrow's supply of execu manpower.
- Begin training and develop employees who exhibit exe tive talent, in a program w clearly-defined written obj tives.
- Review our executive comp sation practices, with a view complete overhaul if such sho be indicated.

Adequate compensation for exe tives is vital. The competition good men during the decade ah will be intense, and our indu try day is in not too good a com petit position. A 1960 survey by The N tional Industrial Conference Boa comparing compensation to the th highest-paid executives in each the 999 companies covered, bro down the findings into six indus groups. In terms of compensation the highest-paid man, the "gas a electric utilities" group ranked fi out of the six; to the second highe paid man, third; and to the th highest-paid man, we came out at bottom of the list.

Under today's income-tax la providing adequate executive co pensation is not easy. A promin utility executive recently said, "W have found it difficult, and at tim impossible, to attract men of super talent inasmuch as their only ho for reward in our business is in form of salary payments which so heavily taxed."

Increasingly, corporations are fi ing their way out of this dilem through such incentives as stock tion plans and deferred compens tion. To remain competitive, our dustry must make the fullest use such measures.

No single executive compensati plan will serve an entire indust Each company must tailor its plan its own individual circumstanc Whatever the plan, however, it m be clearly defined, and thorough understood by those affected by it.

To sum up, every company in industry needs to put forth immedi and intensive efforts to ensure th the next year's and next decade's e ecutives will be there when we ne them. Of all the tasks facing us, no is more important than this; becau a company—or an industry—rises falls with the quality of its executi manpower.

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Commonwealth Edison Company

Chicago, Illinois

CREASED earnings, revenues and kilowatt-hour sales in 1960 were reported in the company's annual report by Willis Gale, chairman and J. Harris Ward, president.

Expenditures for new construction in 1960 reversed a two-year downtrend, rising to $131,383,756 from $120,999,936 the year before. Property retirements and sales during the year were $16,041,271, leaving net additions of $115,342,485. Gross utility plant crossed the two billion dollar mark for the first time, amounting to $2,072,408,975 at December 31st.

The company recently extended its forward planning for new construction through 1964 and made revisions for the intervening years. New estimates are as follows: $160 million in 1961; $135 million in 1962, $165 million in 1963; and $180 million in 1964—a four-year total of $640 million.

The 180,000-kilowatt Dresden nuclear power station, placed in service during 1960, raised net generating capability to 5,211,000 kilowatts. After retirement of 5,000 kilowatts of old capacity, the net capability was 5,206,000 kilowatts at December 31st.

During the next four years, the company expects to install: 305,000 kilowatts at Crawford station in 1961; 305,000 kilowatts each at State Line and Waukegan stations in 1962; 510,000 kilowatts at Will county station in 1963; and 510,000 kilowatts at Joliet station in 1964 or 1965. As a part of this program, up to 145,000 kilowatts of older generating equipment may be retired. On this basis, net generating capability will be increased to 6,996,000 kilowatts.

Consolidated Edison Company of New York, Inc.

New York, New York

CHARLES E. EBLE, *President*

THE building of new facilities to enable us to keep abreast of the demands for our services is requiring expenditures of unprecedented size and new financing in a volume heretofore unknown to Con Edison, pointing up the necessity for a level of earnings that will keep our securities in demand by investors.

Despite a $14 million interim electric rate increase and the highest sales and revenues in its history, earnings per share on the company's common stock didn't quite hold their own being $3.88 for the year compared with $3.92 for the previous year. The requirements of the heavy financing program to meet the capital needs of the utility account in part for the lower return. A second factor is that much of the increased electric sales are at the lowest prices under the company's rate schedules.

The company is expanding its power plants to increase its ability to produce electricity over 30 per cent by 1963. The work includes the Indian Point atomic power plant scheduled to go into operation this year and a new plant started in Queens in 1960 which will have a capacity of 760,000 kilowatts by the end of 1963. The company's capital budget for the five years through 1965 is estimated at $1.15 billion. Last year expansion required the investment of a record $263 million and 1961 expenditures are estimated at $305 million.

To finance this growth to serve New York and Westchester county the company sold first and refunding mortgage bonds with a total face value of $125 million and issued a $50 million issue of preferred stock during 1960. Early in 1961 the company completed arrangements for the placement of an additional $75 million in preferred stock. More favorable market conditions resulted in the conversion of about $50 million of outstanding 4 per cent convertible debentures, thereby improving the common equity position of the company.

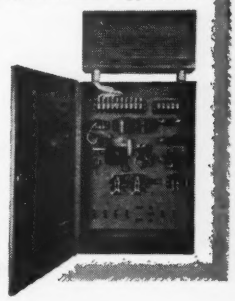
The company continues its quest for more efficient and better ways to serve its customers. Use of electronic data processing equipment was expanded in 1960 and the company will replace its present computers, printers, and card readers with an IBM 7080 data processing system this year. Further improvements are planned for 1962 to achieve additional savings in operating costs.

New equipment in the power plants purchased from New York city and new interconnections with the company's electric system enabled Con Edison to reduce the amount of fuel needed to produce a kilowatt-hour in these plants by 30 per cent, a fuel saving of over $2 million a year. Moreover, the number of men needed to operate these plants has been reduced from 1,200 to less than 700.

In co-operation with six other New York state utilities Con Edison is participating in advance development of two atomic power reactors, either of which may provide the answer to economic electric power from the atom. The seven utilities are backing their belief in the future of this new source of heat with a fund of over $10 million while two manufacturers are contributing the remainder of the cost estimated at some $20 million.

A transmission line which will enable Con Edison and Niagara Mohawk to exchange economy and emergency power up to 600,000 kilowatts is under construction and is in addition to present exchange capacity of 200,000 kilowatts. Construction of the new line will be completed next year.

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Consumers Power Company

Jackson, Michigan

A. H. Aymond, Jr., *Chairman of the Board*

Consumers Power Company, operating in 64 of the 83 counties in Michigan, believes its electric sales in 1961 will be somewhat higher than in 1960 and that natural gas sales will be considerably higher. An additional gas supply became available in 1960 under contract with Trunkline Gas Company. It enabled us to connect 60,000 more gas space heating customers in 1960, bringing saturation to 64 per cent and we expect to supply space heating service to 50,000 additional gas customers in 1961.

The year's construction budget calls for expenditures of $98 million on top of the more than $800 million invested in the last ten years to expand and improve electric and gas service facilities to meet the increasing needs of 875,000 electric customers and 540,000 gas customers. A second 265,000-kilowatt unit at the Dan E. Karn plant on Saginaw Bay went into service early this year, raising total capacity of the Consumers system to 2,536,000 kilowatts. Work is going forward on the new James H. Campbell plant on Lake Michigan west of Grand Rapids. The first 265,000-kilowatt unit is scheduled for operation late in 1962.

The Big Rock Point nuclear plant near Charlevoix, Michigan, also is scheduled to go into operation in the latter part of 1962 with an initial capacity of 50,000 kilowatts. It will be wholly owned by Consumers Power Company. For four and a half years after first operation, this plant will be a test bed for a research and development program to be conducted in co-operation with General Electric and the Atomic Energy Commission. The objective will be to increase the plant's capacity 50 per cent through improvements in the fabrication and use of nuclear fuel. We believe that the building of the plant, plus the research and development program, will be a significant contribution to the development of nuclear fission as a competitive heat source for the generation of electric power.

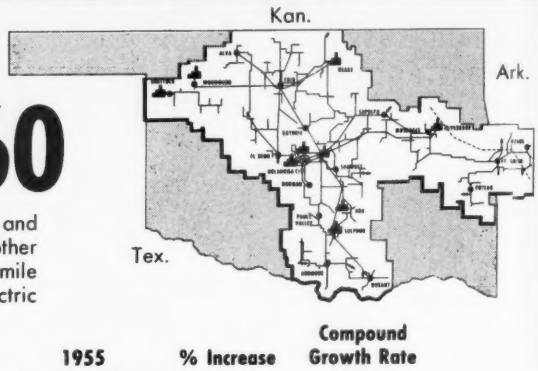
Consumers Power Company also is much interested in the potentialities of pumped storage hydro-electric generation in meeting peak loads. Options have been obtained on several hundred acres near Ludington, Michigan, as the site of a possible future pumped storage hydro development. The lower basin of this development would be Lake Michigan itself.

In connection with electric plant studies for Consumers Power Company, radically new techniques in the use of electronic computers are being developed through research conducted jointly with Commonwealth Associates, Inc., and the University of Michigan. These new techniques offer promise of quick and thorough solution of plant design problems. It appears that they may also bring about prompt detection of potential weaknesses in electric systems.

. . . beginning another DYNAMIC DECADE

OG&E in 1960

The continued steady progress of Oklahoma Gas and Electric Company in 1960 marks the start of another decade of solid growth. Here, in the 30,000 square mile service area of OG&E we are meeting all electric demands and have an adequate reserve supply.



	1960	1955	% Increase	Compound Growth Rate
Revenues	$62,394,000	$44,046,000	42%	7.3%
Net Income	11,375,000	8,367,000	36%	6.4%
Earn per share Common:				
As reported	$1.47	$1.17	26%	4.7%
Excluding interest charged Construction	$1.45	$1.08	34%	6.1%
Common Equity	$75,372,000	$54,740,000	38%	6.6%
KWH Sales (000)	3,287,910	2,143,510	53%	8.9%
System Demand-Kw	846,600	531,400	59%	9.7%

Write for our 1960 Annual Report. It includes complete information about our broad service area.

PIONEERS IN PUBLIC SERVICE OGE

Oklahoma Gas and Electric Company

321 N. HARVEY • OKLAHOMA CITY 1, OKLA. • DONALD S. KENNEDY, CHAIRMAN OF THE BOARD AND PRESIDENT

The Detroit Edison Company

Detroit, Michigan

WALKER L. CISLER, *President*

1960 and the Future

On the whole, 1960 was a good year for The Detroit Edison Company, although it did not live up to the promise of the opening months. Generated and purchased energy delivered to the system during 1960 was 15.5 billion kilowatts, an increase of 6.6 per cent over the preceding year. A new record peak 15-minute demand of 2,798,000 kilowatts was established in December and the summer peak was only about 5 per cent less.

Total utility revenues were up 4.5 per cent to $279,000,601, reflecting improved commercial and industrial business, a modest increase in domestic customers and a substantial increase in the number of electric water heaters. Net income rose 15 per cent to $38,457,310.

Gross additions to utility facilities, including applicable interest and overhead costs, were $61,396,900, up 3 per cent over 1959. About 39 per cent of this was spent for generating units at our St. Clair power plant and the electrical portion of the new Enrico Fermi atomic power plant. In April 1961 the 325,000-kilowatt unit No. 6 at St. Clair was placed in service, bringing the plant's total capability to 1,325,000 kilowatts, the largest on our system.

Since 1950, nine high capacity, high efficiency generating units have been installed at the St. Clair and River Rouge power plants. The eight of these units which were available in 1960 generated 73.5 per cent of our plant output. In 1950 we had two interconnections with a neighboring utility. Today we have five heavy interconnections and more than 8 per cent of the 1960 system requirement was furnished by the purchase of surplus economy energy over these interconnections.

The Enrico Fermi atomic power plant is essentially complete and we anticipate that the necessary legal steps will be completed in time to permit initial fueling of the reactor in September or soon thereafter. The nuclear section of the plant is being built, is owned and will be operated by Power Reactor Development Company. Detroit Edison built, owns and will operate the electric generating section.

Based on normal expectations of load growth over the next five years, we believe that we will not require additional generating capacity for our system until 1965 or 1966. Electrical system construction will continue, partly to provide for anticipated load growth and partly under the impetus of the continuing shift of load from urban to suburban locations, accelerated by the construction of more expressways in our service area.

During 1960 a 51-mile transmission line from St. Clair to Pontiac, designed for future use at extra high voltage, was completed and energized at 120,000 volts. Completion of an additional 40 miles needed for the newest unit addition at St. Clair was delayed into 1961 by difficulties encountered in obtaining rights of way —a problem of increasing severity from year to year.

We now have had several years of experience with our new 13,200 volt distribution system serving about 80 square miles in a perimeter growth area of Detroit. Operating conditions and costs have been more favorable than originally anticipated and we expect to make good use of this kind of distribution in the future in an area of some 2,000 square miles where rapid load growth is anticipated.

We have endeavored to take advantage of every small increment of saving that could be made to strengthen the effectiveness of our undertakings. Looking ahead, fixed costs are expected to require a smaller portion of the revenue dollar in the next few years. Construction outlays will be considerably below expenditures in recent years and relatively more funds will be available from internal sources. Cost-saving methods improvements already adopted and the more efficient equipment now in service will continue to contribute savings. Thus, every moderate increase in sales will reflect favorably in our earnings.

Electric Utilities

For our current list of electric utility stocks considered interesting for growth prospects, write or call —

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Private Wire System to Branch Offices, Correspondents and their connections in 100 cities throughout the United States and Canada.

Duke Power Company

Charlotte, North Carolina

W. B. McGUIRE, *President*

DUKE POWER plans for the future are based on our belief in sustained growth along 300 miles of "Main Street" through the industrial Piedmont Crescent of the Carolinas. This growth is nurtured by enthusiastic and industry-minded state and local governments, by a continuing trend toward broad diversification in industry and by new and extensive facilities for research and development.

Industries in the Piedmont Crescent are producing not only textile products of all kinds, tobacco products and furniture, but a multitude of other commodities including, for example: hoists and cranes, golf balls, automotive stampings, ceramic resistors and capacitors, batteries, cable, paper products, art ware, dental equipment, boats and sporting goods. Many industrial jobs are now filled by some of the 230,000 rural customers on the Duke system.

The level of prosperity in the Piedmont area is reflected in the increased use of electric energy. Residential use increased to 5,382 kilowatt-hours per customer in 1960, some 40 per cent above the national average. Electric sales to industries other than textile increased 16.8 per cent over 1959, while sales to textile industries increased 3.5 per cent. Total energy production was up 8 per cent over 1959 to 14.97 billion kilowatt-hours.

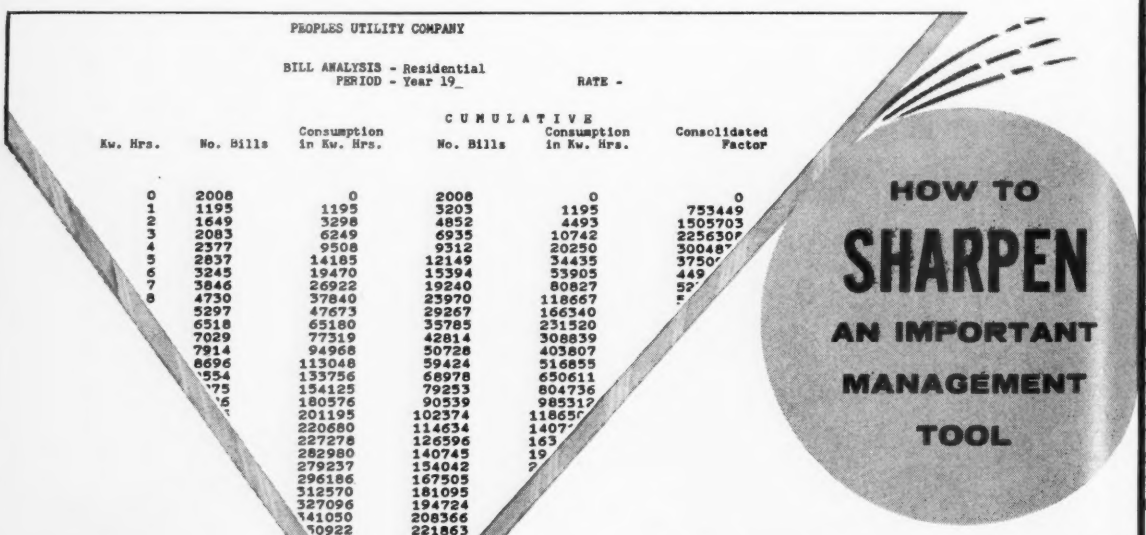
Duke Power invested over $68 million in new generating, transmission and distribution facilities in 1960 and plans to invest $66 million in 1961 and $65 million in 1962 for additional facilities.

Now nearing completion near Belmont, North Carolina, is the largest steam plant in the Southeast, with a rated capacity of 1,155,000 kilowatts. The fifth unit (275,000 kilowatts) will go on the line July 1, 1961. Allen plant energy is delivered to either end of the Duke system via a 230 kilovolt trunk line.

Completing the economic hydroelectric development of the Catawba river, Duke Power has under construction at historic Cowans Ford a 350,000-kilowatt hydroelectric project with three of four 87,500 kilowatt units scheduled for operation in 19[illegible]. Estimated cost of this project, excluding related transmission is $[illegible] million.

Duke Power is a partner in the Carolinas Virginia Nuclear Power Associates now constructing a Parr, South Carolina, the first nuclear-fired steam generating plant in the Southeast, scheduled to go critical in 19[illegible]. The Parr plant is a 17,000 kilowatt prototype pressure tube reactor.

Power requirements in the 20,000 square mile Duke area are expected to increase at a rate substantially ahead of most of the nation, and with the aid of our IBM 7070 computer, plans are being formulated to meet these requirements.



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Prompt, accurate bill analyses can be the extra "edge" to management—spotting current trends and plotting future ones, laying a firm foundation for rate cases and helping plan capital financing.

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*** *illustrated is a typical monthly report***

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Florida Power & Light Company

Miami, Florida
ROBERT H. FITE, *President and General Manager*

FLORIDA was the fastest growing state in the nation, according to 196 U. S. Census, with an annual average rage rate of increase in population of 6 per cent for the past ten ars.

This jumped Florida from twenth place to tenth place in population rank.

Our biggest job has been and likely ll continue to be that of planning ead and building ahead to pace this pid growth.

We are now in the second year of $485 million expansion program vering the period 1960-1964. This ar's expansion expenditures are pected to approach $69 million, hich includes a 240,000 kilowatt dition scheduled to be "on the line" the time this appears.

This will increase our system capaity to 2,128,000 kilowatts. The e-year program calls for boosting above the 3 million kilowatt mark 1964.

Our neighboring electric utilities, ampa Electric Company and Florida ower Corporation, of course, are ced with similar demands for rapid xpansion.

For many years our companies ve been interconnected for the purse of exchange of power in times emergencies and on prearranged ccasions. We are also interconnected ith the Jacksonville Municipal system.

Back in 1959 we joined with the ampa Electric Company and Florda Power Corporation in forming he Florida Operating Committee for he purpose of planning ways and eans of complete co-operation in he design and operation of our systems in a manner that will obtain he most efficient and economical results.

By co-ordinating our schedules of ant shut-downs for inspection and verha and through the daily coordination of the spinning reserve equirements of the individual companies, we are already effecting imortant operating economies plus rovid g greater protection to conuity of service by the greater iversi of back up reserves.

Coping efficiently with emergency ituations, such as hurricanes or the udden loss of a large generating unit, is only one of the many advantages to be gained from our coordination plans.. Co-ordination of daily system operations for greater economy and efficiency for each participant is a major objective.

Economies are effected by sharing extra power or spinning reserves available from the most economical units.

Plans for additional benefits that will accrue from further physical coordination of our systems are taking shape. Last year we strengthened our tie with the city of Jacksonville, increasing it from 69 kilovolts to 115 kilovolts. This year we plan to build a 230 kilovolt cross-state transmission line for an additional tie between the lower east coast and our west coast facilities where our tie with Tampa Electric Company will be reconstructed for 230 kilovolts also.

Studies are now being made with the city of Orlando relative to the mutual benefits that will result from an interconnection with their municipal system.

The objectives are to plan and operate our individual systems and facilities as though they were one integrated statewide, 230 kilovolt transmission line system.

This includes co-ordination of our individual plant expansion programs which can result in the construction of much larger units with resulting important economies, both in the lower cost per kilowatt for plant additions and the improved economies in the operation of the larger generating units.

Through this co-ordination and planning we intend to assure even greater dependability of service for our customers and to take advantage of every practical means of improving operating economies to help hold down the cost of service in spite of constantly increasing taxes and the continuing rise in inflation.

This is not an offer of these securities for sale. The offer is made only by the Prospectus.

NEW ISSUE

$25,000,000

New York State Electric & Gas Corporation

First Mortgage Bonds, 4⅝% Series due 1991

Dated May 1, 1961 Due May 1, 1991

Price 102.046% and accrued interest

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May 17, 1961.

Georgia Power Company

Atlanta, Georgia

J. J. McDONOUGH, *President*

CONSTRUCTION plans of the Georgia Power Company for the three-year period 1961-1963 will require an investment of nearly $229 million—by far the greatest three-year construction budget in the company's history. Of this amount, nearly $60.5 million will be spent in 1961.

Planning engineers are predicting that the economic expansion of Georgia in the next three years will increase demands for electric power by more than a billion kilowatt-hours a year. Similar growth is anticipated beyond the next three years, with the company serving more than 846,000 customers by the end of 1965, compared with nearly 716,000 served at the end of last year.

The 1961 construction budget of the company is $29 million larger than the combined capital investment of the 83 new industrial plants which located in the company's service area last year. (The capital investment figures are based on industries with more than $50,000 of capital outlay and employing at least ten persons.)

A substantial investment will be made in 1961 for continuing work on the Southern Electric Generating Company's million-kilowatt steam-electric generating plant near Wilsonville, Alabama. This plant is jointly owned by the Georgia Power Company and Alabama Power Company. The plant's first two units, with a generating capacity of 250,000 kilowatts each, went into service in 1960. This year a third unit will begin operation. The Georgia Power Company receives half of the plant's output.

One of the company's top 1961 projects will be to continue work on Plant McDonough near Atlanta. This 500,000-kilowatt project was started in 1960 and will cost approximately $66.5 million by the time it is completed in 1964. The first unit is scheduled for operation in 1963 and the second unit in 1964.

Redevelopment work on the North Highlands dam near Columbus also is continuing this year. A new powerhouse is under construction and four new generators with a combined capacity of 29,600 kilowatts are being installed. The project is scheduled for completion in June, 1962, at a budgeted cost of $7.6 million.

Plans were announced early this year for construction of what eventually will be one of the most powerful generating plants in the nation. Capacity of the initial $42-million, steam-electric unit is scheduled for 250,000 kilowatts. When completely developed, the plant will have a generating capacity between 1.5 and 2 million kilowatts. The first unit is expected to be in operation in 1965. The plant will be located on Lake Sinclair between Milledgeville and Eatonton, Georgia.

Also, plans have been announced for the addition of a 125,000-kilowatt unit at Plant Mitchell near Albany. Completion of the $22 million unit will give Plant Mitchell a total capacity of 170,000 kilowatts and will make the plant the fifth most powerful generating station in the company's statewide system. The unit is scheduled for service in April, 1964.

The company is continuing its active participation in study, research, development and construction projects designed to develop the technology needed for low-cost production of electric power from nuclear energy.

The home-wiring plan inaugurated by the company in January, 1960, met with outstanding success during its first year of operation and is being continued this year.

Under the wiring plan, the Georgia Power Company pays a large share of the cost of installing heavy-duty service entrance wiring in residences of qualifying customers. The payments are made to the electrical contractor doing the work and the wiring becomes the property of the power company. To qualify, a customer must install certain circuits of his own as well as certain designated appliances that require the heavy-duty wiring.

During 1960, a total of 10,77[illegible] homes and apartment units were wired under this plan. In this one year, 1,175 total-electric homes were added to the company's lines. This is almost two-thirds again as many total-electric homes as were being served by the company at the beginning of 1960.

The Hartford Electric Light Company

Hartford, Connecticut

R. A. GIBSON, *President*

Jet Power New Development at Hartford

EARLY this year The Hartford Electric Light Company announced its plans to install the nation's first jet engine-powered electric generator. A modified J-57 Pratt & Whitney aircraft engine—the same power plant used to power modern commercial jet transports and a variety of military aircraft—will be harnessed to a generator rated at 10,000 kilowatts. Designed for use during peak load hours, the completely automated unit will be housed in a soundproofed structure about 65 feet long. Advantages of the new power plant include low installation and maintenance costs and a 90 second startup time. The jet engine will burn regular jet fuel and can be replaced within six hours.

The purchase of this generating unit marks another step in the continuing effort of The Hartford Electric Light Company to seek out new and more efficient ways to produce and transmit the power required by its customers. In 1899, Hartford Electric installed the world's first aluminum conductors, and two years later purchased the first central station steam turbine. In 1928, the company began operation of the world's first mercury boiler which used mercury vapor instead of steam to drive a turbine. It is significant that the mercury boiler turbine unit is being retired this year in favor of more efficient methods of producing electrical energy. Thus ends a development extending over a forty-year period.

In its efforts to explore new methods of power generation, the company is also a participant in the Yankee Atomic Electric Company project at Rowe, Massachusetts. In November, 1960, Yankee began delivering power to its ten member utilities, and following the present period of testing, Yankee's power output will be increased to 136,000 kilowatts for full commercial operation by July 1, 1961.

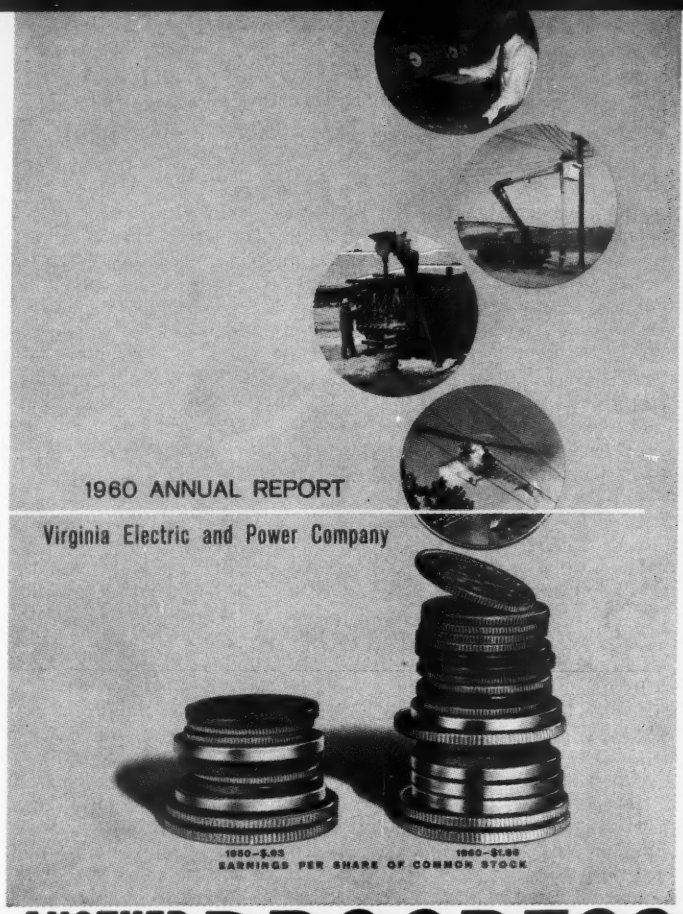
On another front, the company

also looks forward to increases in its electrical load from several sources. In addition to a population expansion higher than the national average, electric home heating is becoming more and more popular. The number of electrically-heated homes on company lines more than doubled during 1960, despite a 14 per cent drop in housing starts nationally. Late in the year, Connecticut's first electrically heated apartment development was completed in Hartford. All but one of its 16 apartments had been rented before the opening.

An extremely promising source of additional load growth is expected from the urban renewal projects in several of the communities served by the company. Redevelopment in the heart of Connecticut's capital city, Hartford, is now actively in progress. Constitution Plaza heads the list of seven major projects involving some 30 acres of land which will largely determine the new face of Hartford by 1980. Private investment and municipal outlays for four of these projects alone will amount to from $100 million to $120 million and may mean an extra $2 million in yearly tax income to the city. According to the construction timetable, these four projects will be nearly completed by 1966, with Constitution Plaza substantially complete by 1963.

Elsewhere in Connecticut are redevelopment projects of equal importance though smaller in magnitude. The cities of Stamford, New London and Middletown are either intensively engaged in or studying plans for their own urban renewal projects.

Although it is difficult to determine exactly what these projects will mean in terms of additional electrical load, estimates can be made when construction plans are set. Of all the projects, Hartford's $35 million Constitution Plaza is most advanced and will add approximately 7,500 kilowatts of load to the company's lines. Load growth through urban redevelopment as well as additional residential, commercial and industrial use of electricity and gas all point to a continuation of ever increasing demands for energy, and demonstrate the need for an ever intensifying search for new and improved methods of producing the energy which is the basis for our modern civilization.



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The Secretary, Virginia Electric and Power Company

1960 HIGHLIGHTS

	1960	Increase over 1959
Property and Plant	$718,000,000	$53,000,000
Operating Revenues	160,588,000	9,732,000
Balance for Common Stock	27,720,000	2,328,000
Earnings per share	$1.86	$.16
Customers—Electric	761,700	18,600
Gas	100,800	3,300
Electric Sales—thousands of kwh	8,110,000	607,000
Service Area Peak Load—kw	1,772,000	155,000
Gas Sales—thousands of cubic feet	7,874,000	907,000

VEPCO **VIRGINIA ELECTRIC AND POWER COMPANY**
7th and Franklin Streets, Richmond, Virginia

The Hawaiian Electric Company, Limited

Honolulu, Hawaii

RALPH B. JOHNSON, *President*

DURING the past two years our area has been the scene of unprecedented activity. Prior to statehood, the company's kilowatt-hour sales had been increasing 8 or 9 per cent annually. For each of the last two years they have increased at the rate of 14 per cent.

The Hawaiian Electric Company serves the entire island of Oahu and generates 86.5 per cent of all energy sold in the multi-island state. The company has two generating stations, with a total capability of 400,000 kilowatts. With the addition of a new unit at Waiau in August, 1961, our total generating capability will be 455,000 kilowatts.

In 1960 we purchased 485 acres of land at Kahe Valley for a third power plant site and developed a master plan for its use. Engineering for the installation of the first of two 82,500 kilowatts oil-burning units was begun on May 3, 1960. The first unit is scheduled for operation in March, 1963, to be followed by the second one early in 1965. In a secluded valley, this site will be suitable later on for atomic plants.

In the last ten years, peak demand has increased from 140,000 kilowatts to 313,000 kilowatts. Estimates are for a peak of 474,000 kilowatts by 1965.

At present, transmission is at 46 kilovolts. In 1958 we began construction of a 138 kilovolt system which, when completed, will become the backbone for the entire system. Because our transmission system is compact, our line loss is considerably less than that generally experienced, averaging roughly 6 per cent.

Capital expenditures to provide new generation, transmission and distribution facilities through 1965 are estimated at $86 million. We expect to obtain from internal sources $27 million and probably will net in the neighborhood of $59 million from outside financing and retained earnings. In 1961 there is budgeted $18.4 million for plant additions.

Electricity is produced by steam-driven turbo-generators using 600 SSF viscosity residual fuel imported from California. In 1960 this item amounted to $6,700,584. The oil cost per barrel is $2.35.

More than 4,400 single-family homes and 3,600 apartment units were built on Oahu during 1960. More than 83 per cent of all homes built and 65 per cent of all apartment units completed during 1960 are all-electric. The 1960 census showed a 35.3 per cent increase since 1950 in the civilian population on Oahu.

It is of special interest that, although there is a minimum of electric space-heating and air conditioning in homes, the Oahu residential use per customer was 4,920 kilowatt-hours in 1960, which is 29 per cent above the national average.

Immediately following the close of World War II, Hawaii became development minded, and considerable progress had been made in expansion of the economy prior to statehood. Basic supports were the military, industrialized agriculture and visitor dollars.

Defense expenditures in Hawaii for 1960 were estimated at $365 million. Military expenditures have a stabilizing influence because they are unaffected by many fluctuations which occur in the overall American economy. New types of military installations are appearing on the scene, such as satellite tracking stations and Nike sites. The nerve center of the Pacific missile range is situated on Oahu, and we are assuming an important rôle in the space age.

Agriculture is still a basic factor in Hawaii. Even in our service area —which supports 79 per cent of the population of the entire island chain, is the seat of state government and center of Hawaii's commerce and industry—14 per cent of the land area is given over to sugar and pineapple production. Mechanization is advanced in both these industries. Together, they are valued at $236 million and represent Hawaii's largest non-military source of income.

Early efforts to develop the economy were centered mainly upon the attraction of visitors, and between 1946 and 1958 the number rose steadily from 15,000 to 171,000. In 1958 visitor expenditures amounted to almost $83 million. In 1960 Hawaii had 295,000 visitors who spent approximately $145 million.

Efforts to bring new industry to Hawaii and enlarge existing industry were beginning to show results by 1955. In 1958, a 1,200-acre industrial park was opened on the southwest corner of Oahu and today has 31 tenants. In the past ten years the r of growth of diversified manu act ing in Hawaii has been 50 pe c greater than the national ra e. 1960 the value of manufacture pr ucts, such as garments, rose fas than did tourism. Sales of ma uf tured products in 1960 wer es mated at $145 million compare w $129 million in 1959.

Between 1955 and the arri al statehood there was a tremendo s u surge in the building of co-op rati apartments, tract developmen s a shopping centers. In 1960, co stru tion completed on Oahu increa ed per cent over the previous yea , wi emphasis on business and comm erc developments. Forty-eight per ent our increased electric sales in 19 came from commercial and industri customers.

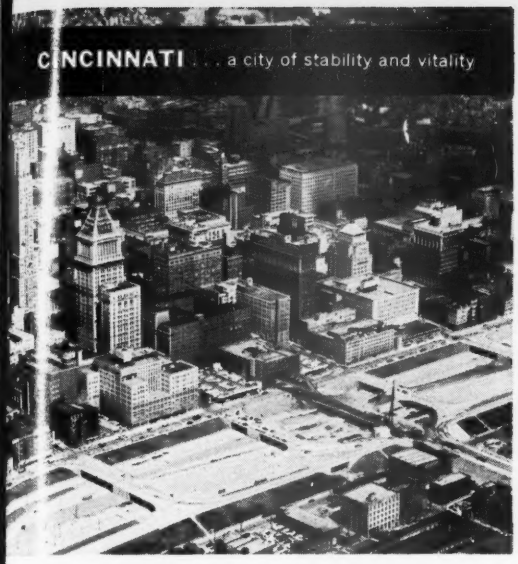
It is difficult to estimate how mu the timespan of economic progress Hawaii has been shortened by stat hood alone. The advent of jet servi also is playing a major rôle. Hawa is now only ten hours distant fro New York city. A businessman ca leave New York mid-morning and a rive in Honolulu with plenty of tim for a swim before dinner.

In conclusion, statehood and r ductions in travel time are openin an exciting new phase in Hawaii development. Statehood, witho question, greatly intensified the ec nomic boom experienced in Hawa during the past two years, but pri to statehood Hawaii's economy wa strong and moving rapidly toward crest.

Our capital expenditure budget fo the next five years is based upon a anticipated return to an 8 or 9 pe cent annual growth in kilowatt-hou sales, which is our normal rate.

Situated strategically in the Pacifi Ocean, Hawaii is destined to remai a strong military outpost and also t assume an increasingly impor tan rôle in the space age. Broadly di versified between agriculture, visito dollars and a fast-growing in ustria and commercial complex, H waii' economy will remain stron and stable.

The Hawaiian Electric Com any— one of the nation's oldest lectri utilities, serving one of the n tion' fastest-growing localities—lo ks t the future with confidence.



Ahead of schedule: this **$300,000,000** new look in the city closest to America

Look down. South toward the Airport. East. West. Out toward the spreading suburbs to the North. Everywhere you see concrete evidence of the Cincinnati Industrial Area's vigorous answer to the challenge of the '60's.

You see traffic already streaming over broad new expressways that keep growing mile by mile. You see vast acres adjacent to downtown Cincinnati now cleared of slums, ready for planned new apartments, office buildings and plants. You see what more than a quarter of a billion dollars in federal and local funds are doing to give Cincinnati the newest look in America by 1962.

You see evidence that private capital has been busy, too. In the past 10 years, over fifteen billion dollars have been poured into a 1,000-mile stretch of the Ohio River valley by new and expanding industries. And over $571,000,000 of it has gone into capital investments in the Greater Cincinnati Industrial Area.

Among the Area's powerful attractions has always been adequate power. The Cincinnati Gas & Electric Company has invested over $271,000,000 in the past 10 years to keep ahead of the Area's expanding gas and electric needs. These needs are expected to double again in the next 10 years. The company will be ready.

The Cincinnati Gas & Electric Company

The Union Light, Heat and Power Company

Serving homes and industry in the Greater Cincinnati Area with an adequate and dependable supply of gas and electricity

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Utility Men Tell Us They Use POWER-PULL To...

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Houston Lighting & Power Company

Houston, Texas

T. H. WHARTON, *President*

IN the decade just ended, the dynamic area served by Houston Lighting & Power Company underwent tremendous growth. As Houston, its most populous city, moved up from sixteenth to seventh largest city in the nation, the population of the entire ten-county, 5,600-mile area increased by nearly half, to 1,575,000 persons.

Per capita usage of electricity in the area also rose. In 1950, it amounted to 2,332 kilowatt-hours. By the end of 1960, it had more than doubled, reaching 5,803 kilowatt-hours. In the same period, the company's system load virtually quadrupled, from 532,000 to 1,931,200 kilowatts, an average increase of 27 per cent a year.

To keep ahead of the growing requirements of the area, HL&PCO added an average of more than 200,000 kilowatts of generating capacity each year during the decade. In the last five years alone, it invested more than $244 million in new plants and equipment, raising its total investment to more than half a billion dollars and its generating capacity to more than 2.5 million kilowatts, a five-fold increase over its capability in 1950.

While the area's growth pace slackened somewhat during the latter part of the decade, it is anticipated that expansion will continue at a healthy, substantial rate for many years to come. As evidence of its confidence that the region will continue to grow HL&PCO has scheduled spending of approximately $148.5 million in the next four years to further expand its facilities, with some $20 million of that total to be spent during 1961.

Throughout this decade of growth, Houston Lighting & Power Company —in common with other companies of the nation—encountered a relentless rise in prices of plant components, equipment, and fuel; in taxes, in labor costs, and in other operating expenses. In an opposite trend, the average cost per kilowatt-hour paid by residential customers dropped from 2.53 cents in 1950 to 1.97 cents in 1960, an all-time low unit cost for the area, and among the lowest in the nation.

A determined and successful economy program, encompassing every phase of its operation, made possible the company's record of holding the line against rate increases in the face of mounting inflation. For example, substantial savings in investment per kilowatt of installed generating capacity, and in fuel costs, resulted from the company's policy of installing generating units of progressively larger size, and from its insistence that those units incorporate maximum efficiency and simplicity.

Economies were also achieved in construction of thousands of miles new transmission and distribut lines, and installation of associa equipment, during the decade, and the maintenance of all of the co pany's facilities.

Recently, Houston Lighting Power Company joined with Da Power & Light Company, Te Power & Light Company, and Te Electric Service Company in a m that will have far-reaching benefi effect on the security and econo of electric service throughout a ma portion of Texas. The companies a nounced plans for early construct of an extra-high-voltage (345 ki volt) transmission line, to cost $ million. Plans call for the line to e tend from the Houston area nor ward to the Dallas-Fort Worth ar At that point it will interconnect w two similar new lines being built the north Texas companies, which w extend westward to the Permi basin area of west Texas, and nor ward to the Red river. The new lin are scheduled to be placed in serv in 1964.

With completion of the n "power highway," Houston Lighti & Power Company will be firm linked with systems in all the ma areas of the state, and will be a to interchange power with those n works in case of an emergency most anywhere in Texas.

Idaho Power Company

Boise, Idaho

T. E. ROACH, *President*

THE growth which has characterized Idaho Power Company in the past decade will continue in the sixties as a reflection of an expanding economy within the company's present service area. Ten years ago, at the end of 1950, the company had a total electric plant investment of $101 million which had grown to an approximate $318 million at the end of 1960. An additional investment of $200 million in generating and service facilities is programmed for the next ten years.

Highlighting the year 1961 will be the completion of the Oxbow hydroelectric project with 220,000 kilowatts of estimated maximum capacity, the second of three licensed projects to be finished in the famed Hells Canyon reach of the Snake river. The first of these three, the 450,000-kilowatt Brownlee project, was completed in 1959. The Hells Canyon unit, which will bring the total new power capacity well over the 1 million kilowatt mark for the three projects, will be built following the completion of Oxbow.

These new generating resources have not only kept pace with the needs of an expanding economy—sales of kilowatt-hours to the company's customers, excluding other electric utilities, have increased by 168 per cent in the past decade—but provide an all-hydro self-sufficiency for many years ahead. Completion of the Oxbow project this year, the subsequent planned development of the Hells Canyon project and the future utilization of other potential sites assure the company of an a hydro generating capacity for t next twenty years of service expa sion. Interim marketing of new pow through other utilities of the Nort west Power Pool on contract sche ules tied to the company's futu withdrawals for its own area nee facilitates the expansion of gene ating capacity.

Idaho Power Company is one very few in the nation which enjo all-hydroelectric generation for t power needs of its system. Th favorable situation will extend for least the next twenty years, assumi presently foreseeable growth, wit out the need for fuel-powered sourc of electric generation. Further more these hydro projects are bein brought into production at a low co

r installed kilowatt, closely comrable with the cost per kilowatt of modern steam plant. In fact, the vestment per kilowatt will be similar that previously experienced by the mpany for its earlier river projects ilt during less inflationary times. his is true for reason of project e, modern construction methods d the unique geographic qualities the project sites themselves.

Operating costs for hydro projects e relatively low, and are held in eck by advances in engineering dein and the utilization of automatic ntrol equipment. Thus, with a low per-kilowatt investment throughout the company's hydro system, and operating costs which are predictably low for the future, total generating costs for the company's next twenty years will be largely inflation proof.

The agricultural economy of the company's service area is growing in productivity with consistent increases in irrigated acreages through electric pumping. With productivity as a base, spectacular advances are being made in processing industries spearheaded by potato processing. It is significant that about 70 per cent of the packaged or processed potatoes consumed in the United States in 1960 came from Idaho plants, compared with 50 per cent for the previous year. The same upward trend is found here for other foods with resultant benefits to area payrolls, commercial and retail activities.

It is difficulty to foresee any slackening in the steady progress of the Snake river valley area because its economy is geared almost exclusively to consumer goods. On the contrary, there is every indication of continued sound growth in the economy.

Indianapolis Power & Light Company

Indianapolis, Indiana

O. T. FITZWATER, *President*

x prospect for the Indianapolis Power & Light Company is a conuation of the steady, substantial ogress it has experienced for many ars, with benefit to shareholders, nployees and customers—and, of urse, to government because of inreased taxes.

This optimistic outlook is based on e growth of the population served, d the demonstrated economic health the Indianapolis area with its ell-diversified industry and its imortance as a center of commerce, overnment, agriculture and transortation.

These advantages, together with xtensive residential development, romotional programs and the prected upturn of business in general, ay increase our 1961 earnings above ur conservative early estimate of 2.71 per share, which would be only hree cents more than our earnings 1960. In the first quarter this year e earned 82 cents per common hare, or two cents more than in the rst quarter of last year.

Our company is in a good position deal with the opportunities as well s the problems that appear to lie head. Our expanded service facilies will permit a large amount of ew business to be added with less han normal capital outlay.

An increase of 43 per cent in peak lectric demand, over the 594,000ilowatt peak last year, is estimated or the summer of 1965.

Additional power for such demand ill be supplied by the large new genrating unit just completed at our lmer W. Stout station, and through ew high-capacity line connections ith the Public Service Company of Indiana, Inc. and the Indiana & Michigan Electric Company.

With these new power sources, the installation of our next large generating unit, previously scheduled for 1964, can safely be deferred until 1966. Thus our construction program for the five years 1961-1965 can be reduced to $69 million as now planned but subject to frequent review for adjustment to new requirements.

Further financing does not appear necessary until 1965, when we expect to sell $10 million first mortgage bonds. Prior to that time sufficient funds for construction should be available from retained earnings, provision for depreciation and other treasury funds.

This is not an offer of these securities for sale. The offer is made only by the Prospectus.

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Kidder, Peabody & Co.

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Stone & Webster Securities Corporation

May 18, 1961.

Interstate Power Company

Dubuque, Iowa

M. L. KAPP, *President*

THE investor-owned electric industry has fulfilled its responsibility as to an ample supply of electricity, and at a continued reduction of cost. The managements and employees of utilities have been good citizens by supporting civic improvements in their communities.

But—managements of utilities have not met the challenges of government power—we have not learned how to tell our story so that the public gets the complete picture.

Public power—preference—unfair taxes—low interest costs continue only because the people do not understand the problem. Even members of Congress do not understand the unfair situation—and we have failed to give them the true facts. They cannot be sold by simply explaining the many problems that affect our companies, but we must show them that many people, and local areas, are being hurt and that our American economic system, which has given our nation the highest standard of living in the world, is being attacked and may be destroyed because the people who benefit under it do not understand the problems.

One of the best ways to start a utility information program is to inform—and continue to inform—our employees and their wives so they can talk with their neighbors and friends about the electric indu try.

The Edison Electric Institute a other organizations have been wor ing hard to get an employee pr gra under way—and some progre s h been made—but the pace has b n e tirely too slow.

I urge the executives of the atil industry to recheck their ent e i formation program—use thei e ployee organizations to the ma imu —and plan a new frontier pr gra to inform the general public O customers—and the natio —w profit if we conduct ourselv s a our program properly.

The new frontier requires a bet information program.

Iowa-Illinois Gas and Electric Company

Davenport, Iowa

CHARLES H. WHITMORE, *President*

THIS spring our company's largest construction period culminated with the placing of a 125,000-kilowatt unit in service at the Riverside generating station, located six miles east of Davenport, Iowa. This unit is approximately two and one-half times the capacity of the company's next largest unit and 40 per cent larger than any unit in service in Iowa. To provide an outlet for the increased capacity and adequate reserve in event of loss of this generator, it was necessary to reinforce interconnections with neighboring systems. A relatively short 161-kilovolt tie was built between existing interconnections with the Iowa Pool to the west and the Illinois Power Company to the east. On April 4th a 79-mile 161-kilovolt interconnection to the south with Union Electric Company of Missouri was placed in service.

With additional load capability it is natural to reflect on those items affecting load growth. Economic trends during the first quarter of 1961 in the company's service area indicate business improvement reversing a two-year decline. Gains by the end of the quarter are sufficient to confirm the general impression that our area recession has bottomed out and have resulted in a considerable improvement in business outlook.

Is the new look in government going to affect our operations and growth? Without a doubt the answer is yes. We envision government competition and government-fostered inflation as the industry's most serious problems. Although Iowa-Illinois Gas and Electric Company is not in extensive competition with a government agency, it is obvious that our efforts should be directed toward containing government business ventures and decelerating the cost-price push. We are exerting sustained study, planning and action to help solve these problems.

Currently we are attacking the increasing cost problem through pool operation, the installation of larger and more efficient generating uni through co-operative planning wi Iowa Pool companies and our oth neighbors, installation of an ele tronic data processing system, r sponsibility budgeting, and cost co parison studies made in co-operati with other utilities.

One avenue of load building is ar development. We have embark upon a unique undertaking. Our lar est service area includes a group cities separated by a state line wi each city government, community a tivity and state group operating an independent basis. Through o area development activities a plan h been instituted to provide singlen of effort for the advancement of t entire metropolitan area. The creati of group pride, convincing ar businessmen and local governmen of the advantages of joint actio securing enabling legislation, a making peace among dissident fa tions will constitute an interesti endeavor over a long period of tim

Iowa Public Service Company

Sioux City, Iowa

E. M. RAUN, *President*

THE steady growth experienced by the Iowa Public Service Company reflects the expansion of Iowa's agricultural production and processing. It also reflects an increasing effect of the accelerated growth of industrial production in Iowa. During 1960 this production is estimated at $5,250 million which is more than double the value of the state's agricultural production. The development of new flood free industrial river sites and navigation on the Missouri river from Sioux City south will stimulate industrial growth in western Iowa and adjacent areas.

Our faith in the potential econom growth of our service territo y is lustrated by the initiation of t largest construction program in t company's history. Our estim ed e penditures for construction duri the five-year period, 1961 hroug 1965, totals $66,842,000. T is a

oximates the total of all property ditions made in the past nine years. onstruction has been started on a w generating station located on e Missouri river just south of oux City. The first 138,000 kilo- att unit is scheduled to be operating May 1964. Natural gas service will exte ded to 40 communities on our stem during 1961. Last year we ex- nded our 161 kilovolt system by a w interconnection with the Omaha ublic Power District system. We will soon complete a second 161 kilovolt interconnection with Interstate Power Company.

We are pleased that we can contribute to the economic growth of our nation. We believe that the continued growth of the free enterprise system is the only permanent solution to our nation's economic problems. Any temporary stimulus in the form of government spending programs, regardless of intent or plan, can only represent a small portion of the total needed.

Proposals being discussed to reform the federal tax system so as to provide additional incentives for investment in plant and equipment should not be restricted to the effect upon the income of business. Serious consideration should be given to increasing the dividend credit and exclusions to stimulate the incentive for investment by millions of potential shareholders in our American enterprise system.

Iowa Southern Utilities Company

Centerville, Iowa

H. L. MANN, *Chairman of the Board*

THE expression "without change there can be no real progress," as never more true in the utility dustry than it is today. The nature our service demands that we plan ars ahead in anticipation of changes come. New ideas for serving our customers more efficiently and more economically must constantly be in process of conception, development and application.

One reservoir of new concepts lies in the minds of utility company employees. The full utilization of this reservoir could be of vital importance to our industry. Employees are eager to have a rôle in the unfolding future of their company. It should be a goal of each company to provide every encouragement and motivation for employees to fill this rôle.

Kansas Gas and Electric Company

Wichita, Kansas

G. W. EVANS, *President*

KANSAS GAS AND ELECTRIC COMPANY has again completed a cade of substantial growth. By the end of 1960, it was serving e and a half times as many cus- mers who used three times as much ectricity as ten years earlier. And e population of the area served by e company had increased 37 per nt, that of metropolitan Wichita, e load center, by 54 per cent.

This increase in service required xpansion of facilities. In ten years e company spent $135 million for nstruction, 77 per cent of its cur- nt electric plant investment. One sult is a much larger generating stem. By this summer, when the rst 150,000-kilowatt unit of the w Evans plant goes on the line, G&E capability will be 7½ times as reat a it was when World War II nded, four times what it was ten ars ago.

In 1960, the area's rapid growth veled off somewhat, but KG&E en- oyed a good year nonetheless. Op- rating revenues were up 4.3 per cent d net income up 7.9 per cent. Com- ercial revenues rose 7 per cent, in- ustrial revenues 3 per cent despite some what soft overall U. S. conomy.

In 1961, KG&E is laying groundwork for continued growth. A $10 illion plus construction program is ing carried out including comple- ion of the new generating unit. ransmission lines and substations also account for major parts of this year's construction expenditures.

Among transmission projects are two new interconnections with neighboring utilities, one to the east, one to the west. KG&E was an area pioneer in interconnected systems, making its first in 1917. Today it is a part of both the Southwest Power Pool and Interconnected Systems Group, comprised of more than 100 systems. More than 90 of them investor-owned. Voluntary systems such as these make unnecessary any federal transmission grids in this area. Any such federal system built would, to a large extent, be duplication and a waste of tax funds.

KG&E is the sole supplier of power to all seven rural electric co-ops in its area, selling them firm power at an average cost of 5.63 mills per kilowatt-hour in 1960. It has served all RECs in the area since 1940. The company also provides electric service and gives advice and assistance to 12 small towns which own their distribu-

(*Continued on page* 82)

TWENTY-FIVE YEARS OF PROGRESS

	December 31		
	1960	1950	1935
Utility plant at original cost	$388,057,761	$160,061,083	$68,324,589
Long-term debt	147,040,000	77,000,000	49,781,500
% debt of net utility plant	44.5%	56.8%	74.1%
% debt of total capitalization ...	47.0%	54.1%	55.2%
Preferred stock	41,391,656	21,391,656	22,007,800
Convertible preference stock ...	4,595,240	4,326,840	—
Common stock and surplus	119,690,942	39,568,042	18,333,254
Total capitalization	312,717,838	142,286,538	90,122,554
Operating revenues	123,528,934	48,074,514	12,890,306
Net income	16,938,581	7,572,460	958,473

Dean H. Mitchell
President

NORTHERN INDIANA PUBLIC SERVICE COMPANY

Hammond, Indiana

tion systems. An emergency interconnection agreement and a 25-year contract to furnish all of their power requirements over their base load are in effect with two additional cities which operate municipally-owned power plants. KG&E also has offered long term contracts to provide electric service at favorable rates to all cities in its service area which have municipally-owned power plants.

KG&E is not only preparing for future growth, but encouraging it. The company in mid-1960 announced a new, low rate for commercial cooking, space and water heating, designed to spur further use of electricity. It has inaugurated an industrial procurement program in its service area. The nationally recognized Focal Point, U. S. A., is being expanded, urging southeast Kansans to become "good salesmen" for the state, particularly in 1961, Kansas centennial year.

There is strong evidence the growth in southeast Kansas will continue. It offers a wealth of natural resources, trained and productive manpower and an ideal center of population location.

It is truly Focal Point, U. S. A.

The Kansas Power and Light Company

Topeka, Kansas

BALFOUR S. JEFFREY, *President*

THE electric operations of The Kansas Power and Light Company continued to develop and expand during 1960 despite the nationwide slow down in business. The sound balance of agriculture and industry in the central and northeastern sections of the state—the territory served by the company—contributed to the continued business expansion in the area.

Kansas' agriculture production last year was the highest on record although the cash value of all crops ranked third in history due to somewhat lower market prices. Total crop and livestock production exceeded one and a quarter billion dollars in 1960 and prospects are currently favorable for another good agricultural year in 1961.

The past decade has witnessed a transition in Kansas from a predominantly agricultural state to one in which agriculture and industry now contribute about equally to the overall income of Kansas.

In the past two years alone 223 new industries have located in Kansas and in the past ten years the population shift to the central and eastern sections of the state has been so extensive that now 92 per cent of the population live in these two areas. And it is in this central and eastern Kansas area that KPL extends a large part of its service.

Keeping ahead of this area's development required a construction budget of more than $14 million last year. For 1961 KPL has budgeted more than $20 million, a large part of which will be allocated to construction of a new 175,000-kilowatt generating addition to Tecumseh station; to the continuance of our high voltage transmission line conversion program and to the expected completion of an additional transmission line system surrounding Topeka.

Not included in 1961's record construction budget were plans recently announced by KPL and eight other electric companies for construction of a 4,000-mile network of high voltage transmission lines spanning an eight-state area from the Gulf of Mexico to Omaha, Nebraska. The grid will make available interconnections of greater capacities than ever before for electric power systems in the area. It will also provide stronger ties for interchange of the more than 12 million kilowatts of electric generating capacity in the area.

In the past two years we have directed our heaviest sales promotion to electric space heating and have had success in meeting the competition of low gas rates in an almost entire saturated gas space heating market. As a result of these efforts, and with the help of a 1¼ cents per kilowatt-hour special electric heating rate, we now have more than 550 electrically heated homes in our service area and more than 600 electric heating customers residential and commercial.

KPL has sold a unique concept of electric heating and cooling for an eight-story office building now in construction in Topeka. It offers an electric heating and cooling system competitive with conventional fossil fuel systems in both installation and operating costs for multi-story buildings. It is based on the use of the heat pump to extract heat principally from the core of the building itself rather than from outside air and then distributing the heat to the perimeter or areas of the building needing it. Full use is thus made from the considerable heat generated within the building itself from modern high level lighting, people and business machines. Provision is made for storing excess heat for later distribution by the heat pump when called for.

Lake Superior District Power Company

Ashland, Wisconsin

G. A. DONALD, *Chairman of the Board*

THE demand for electric service in the area served by the Lake Superior District Power Company continues to increase at approximately the same rate as the national average. Sales to certain industries have shown a decrease, effected by national economic conditions, but have responded favorably recently.

The iron industry has been going through a period of economic adjustment which is reflected in kilowatt-hour sales to this class of customer. Nevertheless in 1960 the company's total kilowatt-hour sales reached an all time high of over 362 million which was an increase of 7.8 per cent over the previous year.

The tourist business of Northern Wisconsin and the Upper Peninsula of Michigan served by the company continues to grow, making this area a nationally known playground.

Increased kilowatt-hour sales accounted for an increase in total electric revenue of 6.2 per cent over 1959. Net income amounted to $1,270,242 which was $78,611 or 6.6 per cent over last year. Earnings available for common stock were $1.83 per share as compared with earnings of $1.70 per share in 1959.

In December of 1960 the new $ million boiler addition to the company's Bay Front steam generating plant at Ashland, Wisconsin was put into service. The completion of this unit increased the system generating capacity 20,000 kilowatts.

The construction budget for 196 is $1,123,000 and is expected to be spent as follows: production plant $160,000; transmission plant $78,000; distribution plant $844,000; and general plant $41,000. Major expenditures in 1961 will be for extending and increasing the capacity of the distribution systems.

Louisville Gas and Electric Company

Louisville, Kentucky

G. R. ARMSTRONG, *President*

Some Comments on Utility Load Growth and Cost of Residential Gas and Electric Service

In 1960 our company's kilowatt-hour sales to ultimate consumers were a little more than twice those of 1950. This increase in electric sales during the past ten years was equal to the annual volume attained during the entire preceding period of sixty-nine years dating back to the initiation of Louisville central station electric service by one of our predecessor companies in 1881.

The gas department member of our combined gas and electric family has established an even better record of recent sales growth. In the period of only seven years from 1953 through 1960 our annual volume of gas sales to ultimate consumers doubled from approximately 20.4 billion cubic feet to 41.1 billion cubic feet. This gain was equal to that attained during the entire preceding period of 115 years.

Despite a temporary drop in our company's large industrial sales incident to the current business recession, we are looking forward to a continued healthy growth in all classes of electric and gas sales in the years ahead. With specific reference to residential electric load, we think it appropriate to submit a brief discussion of some special factors which are expected to hold our rate of increase in this load below that of some other electric systems.

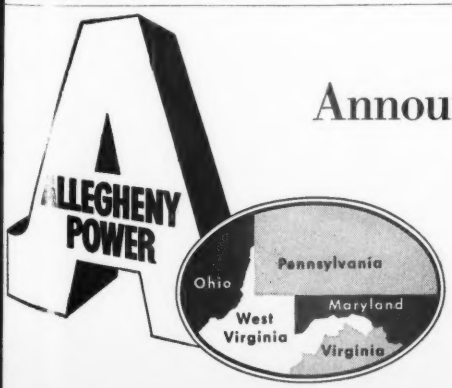
It is generally recognized that electric house heating, water heating, cooking, and air conditioning offer the largest potential for future residential electric growth. Our company's service area is predominantly urban as indicated by the fact that almost 90 per cent of our residential electric customers are also users of our gas service. By reason of our unusually low gas rates nearly all of these customers are using gas for cooking, water heating, and house heating and are saving themselves over $15,000,000 a year by comparison with what they would have to pay for like service using any modern alternate fuel, including electricity at our present special 1.5¢ house heating and 1.1¢ water heating rates. In order to illustrate how low these annual residential costs really are under our present natural gas rates, we have prepared the accompanying table based on typical annual residential consumption of 12,000 cubic feet for cooking, 21,600 cubic feet for water heating and 135,000 cubic feet for house heating. This table shows costs for each type of usage if taken alone and what incremental cost for such usage would be if taken in conjunction with one or more other types of service. It will be noted that the combined cost of all three types of service is only $124.39 per year. The additional cost for both gas cooking and water heating to a customer already using gas for house heating is only $22.94 per year.

This typical gas cost of only $124.39 per year for cooking, water heating, and house heating, together with cost of $72 per year for a typical annual electric consumption of 2,880 kilowatt-hours for other household purposes, gives our residential customers the benefit of a cost of only $196.39 per year for combined gas and electric service, including house heating. We believe this annual cost for all of this household service is one of the lowest to be found anywhere in the United States whether supplied by investor-owned companies or subsidized publicly owned utilities.

LOUISVILLE GAS AND ELECTRIC COMPANY

Summary of Annual Costs Under Company's Present Gas Rates of Typical Yearly Natural Gas Consumptions for Residential Cooking, Water Heating, and House Heating together with Incremental Cost of Each Type of Such Residential Usage in Combination with Other Gas Service.

	Annual Cost
Gas Cooking—12,000 Cu. Ft. per year	
Taken alone with no other gas service	$ 15.48
Incremental cost after water heating and house heating	8.28
Incremental cost after gas house heating	7.89
Incremental cost after gas water heating	9.00
Gas Water Heating—21,600 Cu. Ft. per year	
Taken alone with no other gas service	$ 23.04
Incremental cost after cooking and house heating	15.05
Incremental cost after gas house heating	14.66
Incremental cost after gas cooking	16.56
Gas House Heating—135,000 Cu. Ft. per year	
Taken alone with no other gas service	$101.45
Incremental cost after cooking and water heating	92.35
Incremental cost after gas water heating	93.07
Incremental cost after gas cooking	93.86
Total Cost of Various Gas Combinations	
Cooking, water heating, and house heating ..... 168,600 cu. ft.	$124.39
Cooking and water heating ..... 33,600 cu. ft.	32.04
Cooking and house heating ..... 147,000 cu. ft.	109.34
Water heating and house heating ..... 156,600 cu. ft.	116.11



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Middle South Utilities, Inc.

New York, New York

EDGAR H. DIXON, *President*

Middle South System Looks for Increased Efficiency Through Automation of Generating Units

WHILE notable results are being achieved in the mechanization of line crews and extensive research is being conducted in the field of power transmission, the most impressive activity directed toward increasing the efficiency of the Middle South System is to be found in the automation of generating equipment.

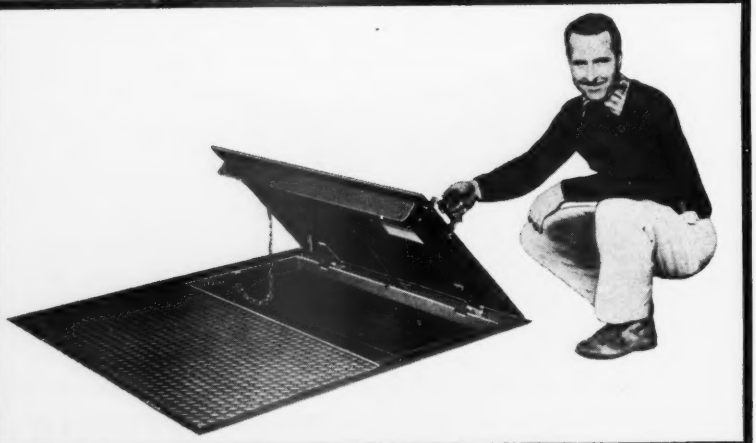
System interest and experience in power plant automation dates back to the early 1950's. It was during this period that the first two generating units were being installed at Louisiana Power & Light Company's Ni mile station. All controls for boil turbine, generator, and auxiliar es these two units were centrali ed an eight-foot wide control boa With the installation of Unit No. 3 this plant in 1955, an improved mo of a scanner-logger control yst was employed. The control boa d w reduced in size to four feet, a id addition of remote ignition fo g fired burners with a safety pur e co trol system was provided.

The second step toward co npl automation came with a pioneer stallation in 1958 at Louisiana Pow & Light Company's Unit No 6 its Sterlington station. The Sterli ton installation is a solid-state, digi computer which monitors essen temperatures and pressures a makes computations for over- thermal efficiency. In the over t years that it has been in operation, has exceeded the 99 per cent ava ability guaranty.

Based on the experience gained Sterlington the decision was made completely automate the Little Gyp unit which came on the line in Ap of this year. There are many i portant innovations in the Lit Gypsy control system. It will co pletely control the start-up, oper tions, and shut-down of the genera ing unit. At lightning speed, it w monitor some 700 different temper tures, pressures, flow rates, and val and switch positions and log out d sired information for record purpos every hour or can log any or all i formation on demand. During no mal operations, the computer w check itself during every scan cyc which requires only two minutes. I under any circumstance, the comput finds itself "confused," it will "r sign" and automatically turn the pla over to the operator on duty.

Little Gypsy will represent a gia step forward in the Middle Sou System's search for improved econo my, efficiency, and safety in powe plant operation. Estimates indica improvement in fuel economy an protracted savings in insuran e pr miums due to the reduction o safet hazards.

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Minnesota Power & Light Company

Duluth, Minnesota

CLAY C. BOSWELL, *President*

FOR many years — perhaps too many—Minnesota Power & Light Company has operated like most other investor-owned utilities. We have been concerned with the problems of engineering, financing, selling and planning that have come with expansion, interconnection and pooling of our systems to meet tomorrow's power needs.

We have pretty much solved these problems or we know how to solve them. But we have not been as accomplished in solving our political problems.

The real problem facing our electric industry today, and thus every one of the investor-owned companies, it seems to me, is the threat of competition from our own government. It is a critical problem because we have not been able to get voters to really understand and care enough about the socialist philosophy that is involved.

Survey after survey shows that public versus private power is not a prime factor in influencing votes. In the last presidential election, Mr. Nixon carried most of the states where public power was thought to be an issue.

Yet, the politically persuasive minority elements who want to take over our business keep us under continual fire. This, despite the fine record we have compiled as individual companies in customer, employee, stockholder and public relations.

Appointments to Kennedy administration positions affecting our industry give us cause for more alarm because of the public power orientation of the appointees.

We have to decide, as individual companies, what we are going to do about it at the grass roots levels where we serve and have the most friends —and most influence—and where our combined efforts on a national sc must gain effective support.

We know we have personal co tact, as employees of investor-own utilities, with our customers. It f lows that if we are well informed e ployees, we can better commu nicat to customers what they have a sta in our industry's fight: the loss traditional freedoms when a stro central government injects itself m and more not only into the pow industry, but also into other fields business.

Perhaps a program dealing spec cally with government competiti and involving our employees cou best be placed under the broad ter of legislative-economic problem Such problems are being elevated a top spot in our company along wi the ones we have learned to solve engineering, finance, sales and pla ning.

Missouri Public Service Company

Kansas City, Missouri

RICHARD C. GREEN, *President*

WE consider Kansas City, Missouri's annexation of 107 square miles of our service territory as one of the most significant developments in the history of our company. This annexation, voted last year, will all be complete by 1963. A thirty-year franchise was unanimously granted to us by the city council of Kansas City, Missouri, to continue serving the 107 square miles of annexed area.

When the Kansas City annexations are complete in 1963, we will be serving 34 per cent of the incorporated area of Kansas City, Missouri and approximately 70 per cent of what is generally considered metropolitan Kansas City, Missouri. Forty-two per cent of our 1960 revenues came from this urban and suburban area. We expect this figure to increase to 44 per cent this year. Only a few years ago this business comprised only 30 per cent of our total revenues.

We enjoy the unique position of having a much smaller per cent of industrial revenues to total revenues than most firms in the industry. This occurs primarily because of the very substantial suburban growth in the metropolitan Kansas City area. Last year, only 13 per cent of our revenue was classified industrial. Our position regarding industrial revenue is further strengthened by the fact that one of the large components of our industrial revenue is revenue received from Power Coal Company whose coal production goes primarily to electric generating plants. Two other of our very stable industries are the TWA Overhaul Base at the Kansas City Mid - Continent International Airport and Pittsburgh Corning's new $5 million plant at Sedalia.

Our industrial sales will gradually increase due to the addition of the Kansas City Works of the Western Electric Company which we connected on March 24th this year. Ultimate consumption is estimated to be 60 million kilowatt-hours, but this is not expected before 1963. The gradual build-up over the next two years is expected to give us an annual revenue of $800,000. Western Electric expects to have an employee force of 5,000 in 1963. We anticipate, from demonstrated experience in other communities, that the industrial, commercial, and residential growth incident to the large Western Electric plant will be as great or greater than the plant itself.

We are in the fortunate position of not having any excess generati capacity in connection with construc ing the Sibley generating stati There are two primary reasons f this circumstance. First, we have be purchasing a substantial amount our power requirements and as a r sult we were in the position to redu to some extent our purchased pow commitments immediately prior the first unit at Sibley going in commercial operation. Also we are r peating this plan in connection wi our second unit at Sibley which go into commercial operation this fa Secondly, the fact that our loa growth rate is much faster than th electric power industry means tha our normal load growth requires u to have a relatively large block of ne power available annually. Because these two factors we are able to in stall larger units than the averag company our size and avoid installin excess generating capacity by clearin the reduction of purchased powe commitments to our schedule for add ing new capacity. Even with both units of our new Sibley plant com pleted we will still be purchasin approximately 10 per cent of our re quirements. This means that we ar in a position to base load our Sible

ant and reflect in net income the ll economies resulting from produc- g a large portion of our power quire ents at about 7 mills, which clude fixed charges. Our over-all rcha ed power cost in 1960 was .4 m ls.

Disc osure by the Census Bureau the 1960 census figures pointed t an ther very significant develop- ent n our metropolitan Kansas ity, Missouri territory. The subur- n p pulation of the four counties mpr sing the Missouri portion of etro olitan Kansas City doubled in opula ion during the decade of the fties. Of particular significance is the act that the greatest increases were the suburban communities located rgely within 70 per cent of metro- olitan Kansas City, Missouri. These et the pace with a 113 per cent crease during the fifties. This sub- rban area is mainly served by our mpany.

We now have eight shopping cen- rs in our metropolitan service area, he major one being the new $15 mil- on regional Blue Ridge Shopping enter. Nine new shopping centers ave been proposed in this area. With he fast move to the suburbs under- ay, we expect additional shopping enters to spring up continually as he result of this population migra- ion.

We are pleased to have recently old an $8 million Series M First ortgage thirty-year bond issue arrying an interest rate of 4.75 per ent. It will not be necessary for us o issue additional securities until ometime in 1963.

We think the 500 miles of new reeways now under construction and rojected in our service territory will ave a very beneficial effect on our rea development program. Our serv- ce area will contain a portion of ev- ry major freeway and highway ex- ending out from Kansas City into the tate of Missouri. We anticipate a ubsta tial amount of the strip-city ype of growth along these new routes ow being constructed.

SOLID GROWTH CONTINUES

in West-Central Ohio!



In our annual report, we state:

"In 1960 so much was written and said about a recession, faltering economy, and similar observations, that many people have forgotten that we have just slowed down. We did not stop or retreat. We continued to build.

"In West-Central Ohio solid growth continued throughout 1960. To stay ahead, The Dayton Power and Light Company also had to grow. Our total plant investment went well over the $300 million mark. We added more than 6000 electric and 7000 gas customers. Our revenues reached $96 million and are almost certain to pass $100 million in 1961."

If you would like the whole story, the coupon will bring you a copy of our Annual Report.

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Montana-Dakota Utilities Co.

Minneapolis Minnesota

CECIL W. SMITH, *President*

MONTANA-DAKOTA Utilities Co.'s 1961 expansion program is one of the largest in our history. We have budgeted $12.8 million for construction of new gas and electric property additions.

Work has started on a 66,000 kilowatt addition to our R. M. Heskett steam-electric generating station at Mandan, North Dakota. The new installation, to be completed in 1963, will boost the station name plate capacity to 91,000 kilowatts. The plant is ideally located with respect to projected system load growth, ample water supply and an unlimited supply of cheap fuel from the str mining operations of our w holl owned subsidiary, Knife Rive Co er Mining Company. MDU has su ces fully pioneered in the use of Nor Dakota and Montana lignite oal generate low-cost power. It is ir h lief that thermal power will ev ntu ly occupy a dominant position n t power generation picture thro gho our service area.

Our principal gas departmen pro ect this year will be the constr ctio of 106 miles of 12 in. high pr ssu natural gas transmission line fro Minot to Bismarck, North D kot This project will make new dee p g reserves, totaling 324 billion cub feet, available to our markets Th new pipeline will provide a com ple loop for our main North Dako system. This assures an adequa e g supply to our customers throughou western North Dakota and amp transmission capacity to and fro our Baker field underground stora reservoir in southeastern Montana

We feel that the economy in ou five-state service area is definite moving ahead. Improvements farming practices, development of cattle feeding industry and expan sion in irrigation farming will con tinue to strengthen the region's mos important industry—agriculture. Th oil industry is making excellent prog ress and is now a major factor in th economy in the states we serve. Ou company is also benefiting directly be cause of its substantial oil interests In addition, new small industrie using locally produced raw materials such as fine clays, lignite and agri cultural products, are doing well.

The political climate in the state we serve has improved as indicate by the proceedings in the recent stat legislative sessions. No legislation, in imical to the interests of investor owned utilities, was approved.

We are looking forward to contin ued progress in our service are with confidence and optimism.

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The Montana Power Company

Butte, Montana

J. E. CORETTE, *President*

OUR industry faces in this and future years a greater and more difficult challenge and danger than ever before.

Pronouncements of the Secretary and the Assistant Secretary of the Interior, the REA Administrator, and other government officials, indicate an attitude of more aggressive expansion of government-owned and government-financed power programs and greater competition with our industry than ever before.

An example is the recent recommendation of the Army Engineers for federal construction of the $235-million Knowles project in Montana on the Flathead river. It is a marginal project with a benefit-cost ratio of 1.08 to 1. Knowles, with 256,000 kilowatts of capacity, will cost over $1,000 per kilowatt, compared to The Montana Power Company's proposed two Buffalo Rapids projects which will be flooded out by Knowles and which would have 240,000 kilowatts of capacity at a cost of less than $200 per kilowatt.

The Army Engineers justify Knowles by using power benefits at 2.2 mills per kilowatt-hour, although the power will be sold by Bonneville at an average rate of 2.32 mills per kilowatt-hour. Using the sales price of power, the loss to the taxpayers on this project over a fifty-year period will be more than $350 million.

If our industry on a nationwide basis does not courageously oppose at every turn this destructive competition and this unnecessary and wasteful program of expanding government power, we will suffer a very detrimental and destructive set-back in our efforts to stem the movement toward more government ownership.

I believe and propose that every utility executive in America hold himself in readiness on a minuteman basis to go to Washington to testify against any federal expansion in the power field. Only by this type of joint effort on a nationwide basis can we hope to offset this unfair tax-free competition and can we hope to succeed.

Extensive polls show that we have not succeeded in informing the public regarding the tax burden federal power imposes on all the people, the lack of any benefit from federal power to most people and the waste that federal power creates by building expensive government-owned, tax-free projects and eliminating tax-paying business. Each company, on a local and individual basis, should greatly expand its public information program so that the public will become informed on at least the following:

The waste of government power projects and the burden on the taxpayers.

The preference clause and its discrimination against customers of stockholder-owned electric companies.

The facts regarding 2 per cent money to REAs and the taxes which REAs escape.

The enormous contribution of the stockholder-owned electric industry to the economy and to the tax base of our states and our nation.

The Montana Power Company offers to do its full share in each of these fields.

Space limitation prevents my writing about our construction and our growth, but like most other electric utilities, we are growing, spending, working hard and bearing up well in spite of our troubles.

New England Electric System

Boston, Massachusetts

WILLIAM WEBSTER, *President*

GROWTH and redevelopment of the territory of New England Electric System continued in 1960. Throughout New England the decade just ended has seen gratifying expansion and increased job opportunities. Gains in electronics, transportation equipment, ordnance, plastics, apparel, research, and service industries have far outweighed the decline in the residue of the textile industry. New England Electric System shares increasingly in the expansion of the new industries as they locate further outward from the spawning grounds in "Research Row" and other traditional centers.

Load growth has averaged nearly six per cent per year for the last decade. Construction of a second outer, circumferential highway around Boston on a radius almost entirely in our service area is well under way. Expansion of plastics, electronics, and other fast-growing industries in other parts of the System, and increasingly effective industrial development activities in Rhode Island, the Merrimack Valley, central Massachusetts and elsewhere promises still higher growth rate for the 1970's.

To meet these requirements, plans have been developed for capacity and transmission through 1965. Yankee Atomic Electric Company, 30 per cent owned by the System, has been producing electricity from its 136,000 kilowatt nuclear reactor since November 10, 1960. The plant was completed on schedule and well within estimated cost. Construction is under way on the Brayton Point 500,000 kilowatt tidewater plant at the diagonal corner of the System from Yankee. One unit is scheduled for completion in 1963, and the second in 1964. Prior to that, in 1962, 230,000 kilowatts of capacity will be purchased from Niagara Mohawk Power Corporation on a declining schedule for three years. A 230,000 kilovolt transmission line is being built to bring this power to the heart of the system, as well as other lines to tie in Brayton Point and strengthen the System grid and its interconnections. We are continuing the now highly developed regional practice of alternately building and buying capacity on a co-operative basis with our several neighbors. This has proven effective in gaining for us the cost advantages

(*Continued on Page* 90)

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of large-sized units both investment and operating.

Organization streamlining has been required to keep pace with the physical integration of New England Electric System. The year 1960 saw the merger of seven companies into the Massachusetts Electric Company which now serves 310,000 customers. This leaves one distributing company each in Rhode Island, Connecticut, and New Hampshire, and four in Massachusetts. Hearings before the Securities and Exchange Commission have been completed looking to the elimination of the single minority interest remaining in one of these electric companies. We are seeking from that same body approval to retain our eight gas companies, all located in Massachusetts, as a second integrate utility system.

With the end of a long series corporate complexities now in sigh attention is being concentrated streamlining the internal organiz tion. Studies looking to a centr computer for accounting, engineeri control are well under way as part this preparation for the future

New Orleans Public Service Inc.

New Orleans, Louisiana

New Orleans Public Service Inc. realized gains in the sale of all services in 1960. Gerald L. Andrus, president, stated in his annual report to stockholders that total operating revenues amounted to $58,880,747, an increase of 9.7 per cent over 1959. Electric operating revenues for the year totaled $36,141,010, or 8.5 per cent higher than in 1959. Gas operating revenues gained 7.2 per cent and transit operating revenues gained 18.9 per cent over the previous year.

Continuing expansion and improvement of the electric and gas systems and modernization of the transit system is planned. Included in the program is construction of a $2 mi lion addition to the company's steam electric generating station at M shou which was begun early in 1961 Th project is scheduled for comple tio in 1963. Work is in progress t strengthen electrical connections wit the Louisiana Power & Light Com pany.

Niagara Mohawk Power Corporation

Syracuse, New York

Earle J. Machold, *President*

Three recent developments in Upstate, New York may be of special interest and significance to the electric utility industry. They are the advent of power from the Niagara River Project, the construction of a statewide transmission grid, and a new research and development program designed to achieve economical atomic power.

The Niagara Power Project, developed by the Power Authority of the state of New York, generated its first power last February and is scheduled for completion in December, 1962, with an ultimate capacity of over two million kilowatts. The Niagara Mohawk System has contracted with the Authority to purchase up to 1,190,000 kilowatts, and two other investor-owned utility systems in the project's marketing area will take a total of 685,000 kilowatts. The remainder of the project's output has been purchased by municipal operations.

The advent of such a large amount of power in a relatively short period has created serious marketing problems for Niagara Mohawk and the other investor-owned utilities. The vast output of the Niagara Project will be poured into a region where the utilities have more than sufficient generating facilities to meet the needs of their customers.

Niagara Mohawk will have large reserves of electric generating capacity. This will be temporary, as the normal growth of electric use within the marketing area will steadily absorb the Niagara output.

However, without waiting on this, Niagara Mohawk has taken vigorous action to open up larger markets for electric power, particularly through bulk sales to neighboring utility systems in the Metropolitan New York Area, New England, Pennsylvania and New Jersey.

To facilitate this increased interchange of power, the Niagara Mohawk system is building over 200 miles of 345,000-volt lines through the Mohawk and Hudson Valleys to strengthen substantially its existing link with that of Consolidated Edison. These will quadruple the capacity to exchange power between the two systems. A new 230,000 volt extension from these lines will extend eastward to provide enlarged interconnections with New England.

Niagara Mohawk's new transmission grid will be the center part of a new grid that will extend through the heart of New York state from Niagara Falls to New York city. The western section will be built by the Power Authority; the eastern section by Consolidated Edison. This grid of over 600 circuit miles will become the backbone of power for all of New York state, making possible an interchange of much larger amounts of power within the state, and greatly enhancing the exchange of powe with other systems in the northeast ern United States.

The seven major investor-owne utilities in New York state are no launched on a joint effort to produc power from atomic energy at cost competitive with conventional fuels

To achieve this objective, they hav formed a non-profit company, Empir State Atomic Development Asso ciates, Inc., which will invest ove $10 million in this basic development program.

From methods tested or projected to date that show the best possibili ties of producing economical atomic power, ESADA has selected two for intensive development. It has con tracted with the General Electric Company which will build a 5,000 kilowatt direct superheat reactor plant at its Vallecitos Atomic Laboratory in California. Niagara Mohawk's project engineering department is de signing essentially all parts of this new prototype plant except the re actor. ESADA has also contracted with the General Dynamics Corpora tion to carry out the necessary de velopment work and evaluate engi neering features of a full scale High Temperature Gas Cooled Reactor. The ESADA companies expect that the two developments will take three years to complete.

Northern States Power Company

Minneapolis, Minnesota

ALLEN S. KING, *President*

We expect that Northern States Power Company will continue the progress which has been evident during the past decade. We have great confidence in the continued industrial development of our territory and are preparing to invest about $300 million in new plant and equipment in the next five years to meet the anticipated growth.

We are concerned about the outcome of certain political facets of our business, and we look upon the next ten years as being quite critical in this category.

With the American public being willing and anxious to invest in utility securities on a personal and voluntary basis, it is very difficult to understand the current impetus being given to certain government power programs. The electric utility industry is currently collecting over $2 billion in taxes; and each new federal power project eliminates certain of those taxes. How much better off the public would be if investor-owned companies were permitted to expand and continue to serve, with a continuation of this substantial tax contribution to various levels of government, rather than to expand in the tax favored field.

Sometime in the near future, the people may have an opportunity to express their choice in this very serious question—should our utilities continue as taxpaying investor-owned businesses in the American tradition, or should we accelerate the current activity in the government owned tax field?

The next ten years will be the vital years of decision in this matter, and we in the utility business must do all in our power to inform the public so that their choice will be based upon proper information.

We in NSP are confident of the ultimate choice, but we are aware of the obligations imposed upon us in presenting adequate information.

Oklahoma Gas and Electric Company

Oklahoma City, Oklahoma

DONALD S. KENNEDY, *President*

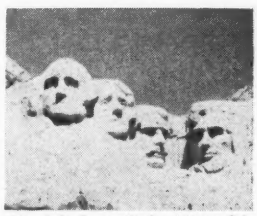
THE renewed drive for federal power projects again focuses attention upon the economic waste facing the nation through the duplication of electric power facilities. The indicated need for higher defense budgets magnifies the problem. The economic waste of this duplication has a double impact on the nation. It impairs the stability of investments by private capital at a time when the government is trying to stimulate production, and in the end saddles the consumer-taxpayer with higher cost for electric service.

Investor-owned electric utilities have an enviable record of achievement. The power supply has been adequate and rates have been reasonable. It is a high fixed-cost industry, where all avenues of engineering, financing and management skill must be employed to maintain world leadership in this field. I do not believe anybody doubts this leadership.

During World War II, electric power systems in the Southwest and in many other areas met the emergency needs of defense plants by pooling their regional power resources. This was accomplished in our area by the Southwest Power Pool, which was a voluntary association of twelve electric utilities in a seven state area. The Oklahoma Gas and Electric Company has been a member of this pool since its inception and at present we have interconnections at eighteen points with other electric utility systems in Oklahoma and Arkansas.

Within recent weeks, utilities in this area have announced plans for a high voltage transmission grid, which will consist of 4,000 miles of heavy transmission lines connecting more than 12 million kilowatts of generating capacity in eight states of the South and Southwest. The plan culminates more than three years of study. Construction will begin this fall on the first segment of the project in Oklahoma, which will provide a high-capacity transmission tie between Oklahoma Gas and Electric Company and Public Service Company of Oklahoma.

The plan fully implements the economic advantages of regional use of power facilities without the economic waste of duplication. It conserves private and public capital for other important uses.



Mount Rushmore National Memorial

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Agriculture to mining, timber to tourism, plains to mountains . . . that's South Dakota, ever changing, always different. Over 2-million people visit us each year, for this is part of America's playground . . . the home of Mount Rushmore. We are proud to serve the Black Hills area, and to help in its progress and growth.

Fiscal year	1960	1955	1950
Electric revenues (thousands)	$ 7,405	$ 4,939	$ 2,850
Kwh sales (thousands)	397,220	265,341	125,165
Number customers	32,803	27,521	20,884
Common stock equity (%)	36.7	25.7	22.2
Earnings per share, common	$ 2.56	$ 2.06	$ 1.99

An Annual Report mailed on request.

BLACK HILLS POWER AND LIGHT COMPANY

RAPID CITY, SOUTH DAKOTA

Otter Tail Power Company

Fergus Falls, Minnesota

ALBERT V. HARTL, *President*

THE challenge of the future to Otter Tail Power Company is the same as that to the entire investor-owned portion of the electric utility business. It is the elimination of the threat of further government encroachment and the adjustment of existing tax inequalities. We are attempting a unique solution to the problem. Ours is not the direct negative approach which attempts to prevent further government ownership but rather an indirect approach which consists of basic economic education.

By such communication means as we have available to us, we teach elementary economic principles to all segments of our service area. It is our belief that by so doing we will develop thousands of articulate spokesmen for the free enterprise system, people who can point out the fallacies inherent in "cheap government power" arguments.

Likewise, Otter Tail Power Company is convinced that we must be openly more aggressive in our political participation. For fear we might be "criticized" by our opposition, we have taken a passive neutral approach for too many years. Government power advocates have no such compunctions. They pursue every possible political advantage to help their socialistic philosophy. The least we could do would be to match their zeal and enthusiasm in support of our free enterprise system.

Otter Tail Power Company will continue to provide for all the power needs of its customers. It does not seek assistance from any governmental agency. Nevertheless, it recognizes the benefits inherent in the pooling of all facilities within a given geographical area. Other suppliers in our area are the federal government and rural electric generating cooperatives. We, therefore, not only will, but must work in close cooperation with all of these to the end that the most economical solution to the power supply be obtained.

Pacific Gas and Electric Company

San Francisco, California

NORMAN R. SUTHERLAND, *President*

PACIFIC Gas and Electric Company is engaged in several large projects which combine to make this one of the busiest years in its history. A major undertaking in full swing is the construction of the $300 million Alberta-California natural gas pipeline in which PG&E is associated with several subsidiary and other participating companies.

This 1,400-mile-long pipeline is significant to the continued economic development of our service area and hence to the progress of the electric industry as well as other industry in this region. Beginning next winter it will provide a 20 per cent increase in our system peak day gas resources. During summer periods of reduced demands for gas part of the additional supply will be injected into our underground storage fields for customer use in the following winter. Our thermal electric plants also will require additional summertime gas supplies for fuel as we serve our high hot-weather electric demands for irrigation pumping and air conditioning.

A new system peak of 5,130,000 kilowatts was established in July 1960. It should be substantially exceeded this year. A contributing factor will be a third successive year of subnormal precipitation which California is now experiencing, resulting in a further increase in irrigation pumping load. To serve the demands of our customers, we now have company-owned generating sources of 6,035,500 kilowatts supplemented by about 470,000 kilowatts of capacity from other producers.

We have an additional 1,535,000 kilowatts under construction or scheduled for completion by the end of 1964. Notable in this program is the 60,000-kilowatt boiling water reactor nuclear unit which is being added to the Humboldt Bay power plant. It will pioneer the principle of pressure suppression reactor containment. The concrete reactor containment caisson and surrounding water pool have been sunk to a depth of 85 feet below ground level and construction of the turbine pedestal is proceeding at present. The unit is scheduled for service in the fall of 1962. We are confident that in addition to producing competitive power in the Humboldt Bay region upon the second fuel loading, this unit will materially advance the day of generally competitive nuclear power.

In another direction in the area of unconventional steam generation, we will proceed with the installation of a second 12,500-kilowatt unit at The Geysers geothermal power plant, which has been operating successfully since last summer.

Large conventional units also will be added. Having completed in recent weeks the second of two 330,000-kilowatt units at Pittsburg power plant, we have begun work on the first of two more such units to be installed at Morro Bay power plant for service in successive years, 1962 and 1963. These two plants are brought to 1,320,000 and 990,000 kilowatts capacity, respectively, by these units. Additionally, last month we announced the scheduling of two other 330,000-kilowatt units at Contra Costa power plant, bringing that plant to a total capacity of 1,270,000 kilowatts. Construction is scheduled to begin in 1962. Both units will be completed in 1964.

We have 124,000 kilowatts under construction in two hydroelectric projects and another 18,500 kilowatts of hydro capacity scheduled to start. A market also will be provided for 85,000 kilowatts of by-product hydroelectric capacity to be available in 1963 under our partnership agreement with the Oroville-Wyandotte Irrigation District which is building a water supply project. The company is studying similar co-operation in furtherance of proposed water conservation projects of other local agencies, in keeping with our practice of more than thirty years' standing.

The PG&E service area in northern and central California has experienced stability throughout the recent period of recession in some other areas, and in numerous respects has continued to make satisfactory gains over preceding years. Increased residential use of electricity is one of these areas. A factor is the industry's strong appliance sales promotion, in which PG&E plays a leading role. We are continuing our emphasis on load building by this means.

Pacific Power & Light Company

Portland, Oregon

D. R. McCLUNG, *President*

Whatever the trend of electric utility industry problems in the next few years, our foremost challenge is to earn and maintain customer friendship, confidence and understanding.

Continued expansion in energy demands will keep us busy financing and building physical facilities. The pressure of operating costs will make research for further economies such as have been achieved by electronic billing and accounting. But we must give equal management attention to every-day customer relations.

This is basic to the development and long-term success of our business. It is as important under one national administration as another.

The streamlining of operations to gain efficiency and hold down rates must not be at the expense of a friendly smile for the individual customer, a genuine interest in the customer's question or complaint, and the willingness and ability to take the necessary time to supply satisfactory answers.

We need to recognize that home use of electricity in most sections of the country has increased to a point where bills have grown relatively large in dollars even though they continue to be very small in kilowatt-hour unit price. On our own system, for example, many homes today are using 1,500 to 2,000 kilowatt-hours per month, even without electric heating. Monthly bills of $18 to $20 are commonplace. And while the amount customers pay us each month has been steadily increasing, new accounting and operating procedures have tended to give us fewer personal contacts with them.

The large use customers are highly important to us. They are no more important, of course, in terms of service responsibility than the $2.50 or $3.00 a month customer, but we cannot afford to forget that the large users represent the leaders in the commercial development of business volume and revenues. We want more and more customers to use the quantities of electricity and the electric appliances that these community leaders are already using.

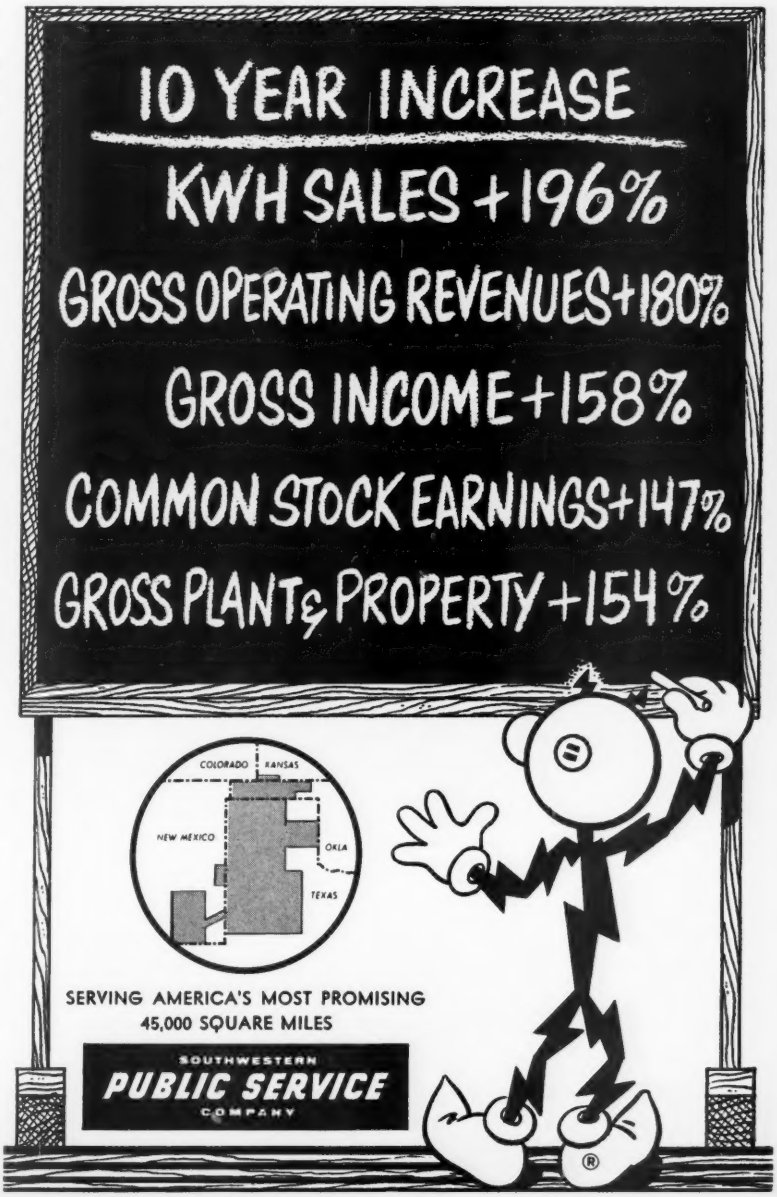
If we want the true extent and value of this service to be recognized and appreciated by the customers, and reflected in a warm and friendly attitude toward the electric company, we certainly should start by making a sincere effort to let the customer know that we value and appreciate his business.

When we do this, we will be making friends all along the line, and solutions to some otherwise perplexing problems will be in sight.

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Philadelphia Electric Company

Philadelphia, Pennsylvania

THE year 1960 saw continued growth in sales of electricity, gas and steam, as well as significant accomplishments in other phases of Philadelphia Electric Company's operations, R. G. Rincliffe, president, stated in his annual report to stockholders.

Total revenue from the sale of electricity, gas and steam was $273,050,000, an increase of $9,165,000, or 3.5 per cent over 1959. This increase was depressed by cool summer weather and a slowdown in business during the year. Nevertheless, gains were reflected in all major classes of service.

Electric revenue was $224,382,000, an increase of $5,857,000, or 2.7 per cent. Most of this growth resulted from increased sales of electricity to industry, which rose over 300 million kilowatt-hours, or 4.8 per cent. Steady revenue growth is supported by the diversity of industry in the area, and continued expansion in home use of electric

The company spent over $75 m lion on plant expansion in 196 giant Eddystone station was comp ed in 1960. This station hous 325,000-kilowatt turbine-gen capable of producing enough to supply the residential electri of a city of five million peop according to the report, is the most efficient power plant.

A five-year construction pro amounting to $445 million is pl

Portland General Electric Company

Portland, Oregon

THOMAS W. DELZELL, *Chairman of the Board and Chief Executive Officer*

PORTLAND General Electric Company continued its record of progress in 1960, establishing new highs in energy usage, number of customers served and revenue produced.

The number of customers on company lines neared 260,000, and kilowatt-hour sales increased to over 4.25 billion. Gross revenue increased by over 10 per cent so that 1960's total was $44.77 million. Net income increased 18.7 per cent to $7.5 million. The increase in revenue was due partially to a 4.8 per cent rate increase granted in April, but was due in a larger sense to aggressive sales promotion and expanding use of electric energy in the PGE service area.

Most notable in this regard is remarkable acceptance of electri for home heating. Of all new dwelli units added to company lines in 19 about 40 per cent are heated el trically. This includes, incidental 31 per cent of new homes and per cent of new apartments. All the company serves over 30,000 re

diversified utilities in a diversified area . . .



Serving 200 Communities
102,000 Customers

WESTERN LIGHT & TELEPHONE COMPANY, INC.
2015 Forest Avenue Great Bend, Kansas

DECADE OF PROGRESS

	1960	1951
TOTAL ASSETS	$57,300,000	$30,500,000
REVENUES		
Electric	$10,450.000	$ 5,352,000
Telephone	2,591,000	1,984,000
Gas	539,000	404,000
Water	276,000	134,000
TOTAL	$13,856,000	$ 7,874,000
NET INCOME	2,203,000	894,000

Western Light & Telephone Company, Inc., serves an area containing a population in excess of 225,000 in three states.

It is one of the few companies providing four types of utility service.

ELECTRIC	TELEPHONE	GAS	WATER
Kansas	Missouri Iowa Kansas	Kansas	Kansas

ntial electric heating customers—ore than any other electric utility the United States. This electric at lo d coupled with high saturaon of electric appliances results in average annual consumption of ectric ty by residential customers of most 10,000 kilowatt-hours.

In 1960 PGE spent $11.6 million expand transmission and distribuon fa ilities. The construction budgfor 961 totals $16.1 million. This dget loes not include about $4 milon which may be spent to comence construction of the company's west hydroelectric project, Round utte dam on the Deschutes river. nal approvals for this $68 million, 0,000 kilowatt hydro plant were tained in 1960 and early 1961. Conruction has begun and the project ll be on the line in the fall of 1964.

The company is proceeding in conction with associated companies in attempt to secure a license to conruct the $250 million, 1 million-kiloatt High Mountain Sheep project the Snake river between Idaho d Oregon. A group of Washington te public agencies has filed a conting application and the matter is w before the Federal Power Comission. High Mountain Sheep ould be located above the mouth of e Salmon river, thus causing no hery problem on that most impornt salmon producing stream. The blic agency dam, Nez Perce, would below the Salmon and would block fish runs. Hearings are expected to be concluded this summer. Final action by the commission is not likely before late 1961 or early 1962.

The entire matter of development of the Middle Snake river has been clouded by recent action of the Kennedy administration. Secretary of Interior Stewart Udall in March requested the Federal Power Commission to suspend the current hearings and suggested that no licensing action be taken for at least three years. Udall's position was that new power resources in the region will be adequate for the next several years and that the delay on Middle Snake development would give time to solve the problem of migratory fish passage.

This position cannot be justified on either a power or fishery basis. Reasonable load growth studies indicate that substantial amounts of power will be required in the region by 1970 or 1971. The new resources to which the Secretary refers presumably are power resultant from Canadian storage and a power plant at the Hanford plutonium reactor. Firm power from these two resources will be about 2 million kilowatts. This will meet Northwest load growth for about two and a half years. Furthermore, because of federal preference marketing policies these new resources will only temporarily be available to customers of investor-owned companies. Mountain Sheep is the best single resource for these companies and any delay in its construction will react to the detriment of the 2,500,000 Northwest citizens served by these companies.

It is also incorrect to assume that the fishery problem can be solved in the space of three years. All competent fishery biologists agree that a period of at least ten years is required before any fish passage facility can be properly evaluated.

The administration's action on High Mountain Sheep leads to the fear that its desire for federal domination of the Northwest power system will cause delays or stoppages in a power development program unprecedented in U. S. history. For the past ten years public, federal and investor-owned companies have carried out a construction program in the Northwest which has tripled the power capacity of the region—from 4.5 million kilowatts to nearly 13 million. At the present time, non-federal utilities in the region provide about half of the area's power capacity. On present construction scehdules, not including High Mountain Sheep, this ratio will increase to 59 per cent in 1965.

Federal policies which would eliminate or curtail nonfederal development in the region would have the inevitable result of stifling the region's economy at a time when the primary national purpose should be action.

Public Service Company of Colorado

Denver, Colorado

R. T. PERSON, *President*

KEYS to the long-range growth of the state of Colorado are its imate and the opportunities offered its abundant natural resources, ch agricultural farmland, its strategic geographical location, and its ell developed transportation system. Today, as we view the almost mitless opportunities for economic owth the wise use and development the area's water resources come to sharp focus.

For this reason, Public Service ompany of Colorado, as it has from e very beginning, supports the olorado River Storage Project. This rigation project is designed to fulutilize the water resources of the olorado river. It is a multi-purpose ater development in the Upper Colodo River Basin, which covers parts of Utah, Wyoming, Colorado, New Mexico and Arizona.

Economically sound development, utilization and conservation of this water resource depends on wholehearted support and co-operation of private as well as governmental interests.

It is in full recognition of this principle that our company joined with four other major investor-owned utilities in the five-state area in making a proposal to the Bureau of Reclamation and the United States Congress to assist in the transmission of Colorado River Project Power.

Among other things, the investor-owned companies' proposal to cooperate with the Bureau of Reclamation in the transmission of project power would:

- Save the government some $137 million in transmission line construction costs.
- Fulfill power delivery requirements to preference customers and project integration as provided by law.
- Make possible additional water development sooner by repaying reimbursable costs several years in advance of the tentative government plan.
- Provide millions of dollars in taxes at the local, state and national level.

Tangible evidence of our willingness and ability to carry out this program is contained in our long-standing and recently renewed wheel-

(*Continued on Page* 96)

ing agreement with the Bureau of Reclamation in connection with the Colorado Big Thompson project. This arrangement has proved without question the economic benefits of avoiding duplication of transmission facilities to the satisfaction of all interested parties.

Notwithstanding the obviously desirable benefits to be derived from the joint transportation of Colorado River Storage Project power by the Bureau and investor-owned companies, preliminary recommendations of the Department of Interior representatives reject the companies' proposals both individually and collectively.

Under the circumstances, one can only conclude that these governmental policies and recommendations arise out of a misunderstanding of the facts or political pressures stemming from ideologies foreign to the concepts of investor-owned, taxpaying business enterprise. Since all of the facts and engineering principles have been fully disclosed and jointly analyzed by company and governmental representatives, the latter of the two assumptions assumes added plausibility.

Federalized power planners carry the concept of government electric power beyond the limits of generation incidental to water development. They envision government owned steam generating plants and giant transmission systems all built at taxpayer expense and without regard for wasteful duplication of exist facilities. The end result of s plans can only bring complete fede monopoly and a total lack o lo determination and control.

Those who cloak and disguis th efforts to federalize America' po er industry behind the worth y jective of resource developmen de disservice to our country and art ularly to the arid western egio whose future relies so heav ly further water conservation, ora and other multi-purpose bene ts.

Citizens of the midwest an l e and their elected representativ s w not continue to support weste n r lamation when it embraces qu stio able objectives and outright wa of taxpayer funds.

Public Service Electric and Gas Company

Newark, New Jersey

DONALD C. LUCE, *President*

THE past year was one of the most significant in the company's history. Of major importance was the decision rendered by the New Jersey State Board of Public Utility Commissioners allowing increased revenues of approximately $10 million on an annual basis, including the $3.5 million temporary increase in gas rates granted in 1959. For rate making purposes, the Board disallowed the provision for normalizing the tax reduction arising from the use of liberalized depreciation for federal income tax purposes. Due to this order, the company, effective August 1, 1960, changed its accounting for this tax reduction, the effect of which is to reduce current expenses and increase income.

New records were set in 1960 for output, demand, sales, and revenues from electricity and gas. Total system output of electricity exceeded 13¼ billion kilowatt-hours and the total gas send-out was 900 million therms, 5 per cent and 12 per cent, respectively, greater than the quantities in 1959. Sales of electricity to customers increased 5.1 per cent to a record 12,110,307,941 kilowatt-hours, while gas sales totaled 831,-617,377 therms, a new record and an increase of 8.8 per cent over 1959.

However, the growth and progress of the company are not confined to 1960 alone. During the past ten years, the company's sales of electricity more than doubled, and gas sales more than tripled. Ten years ago only 49,000 homes and buildings were heated by gas compared with more than 300,000 homes at the end of last year. Additions and improvement to plant and equipment since 1950 have totaled more than $1,070 million and plans for 1961 call for the expenditure of an additional $140 million to $150 million for facilities to keep pace with continually increasing demands for electric and gas service.

Three major additions to the company's rapidly growing generating capacity are in progress. At the new Mercer station on the Delaware river near Trenton, the first of two 320,-000-kilowatt turbine generators was placed in service in December, and the second unit is expected to be placed on the line in June. At Sewaren station, near Perth Amboy, the company is installing an additional turbine generator unit with a capacity of 342,000 kilowatts.This additional unit, scheduled for service in 1962, will raise Sewaren's capacity to 822,000 kilowatts, largest in the company's system. On property adjacent to the existing Marion station in Jersey City, preparation of the site has begun for construction of Hudson station, a new plant in the system. Initially, Hudson will have one 400,000 - kilowatt generator, planned for operation in 1965. When these new major installations have been completed and placed in serv and some low-pressure generati units at the Marion station retir the total installed capacity of company's nine steam generating s tions will be 4,489,500 kilowatts, increase of 57 per cent over the pacity at the beginning of 1960.

Under way or planned are co struction and reinforcement of ma high-tension transmission lines a switching facilities, at a cost of ne ly $50 million, in order to maint high standards of reliability of se ice and to insure the most effici use of the company's increasing g erating facilities. Recently placed service were new switching stati at Gloucester and East Rutherfo In connection with the operation Mercer station, the company is co structing 230,000-volt tower lines Trenton switching station and to West to tap the Roseland-Lambe ville 230,000-volt line. A new tow line operating at 230,000 volts w placed in service last year betwe Branchburg and Brunswick swit ing stations as part of the Merc project. In connection with the i stallation of the new generati g u at Sewaren, a 230,000-volt tr nsm sion line is planned between Brun wick switching station and Bayw switching station. As part of th project, a new 138,000-volt circ will be installed from Bay way Marion switching station.

During 1961, the company's expansion plans contemplate the installation of 2,000 miles of overhead and underground wires, 7,000 additional distribution transformers, 6,100 new street lights, 11,000 poles and 22,000 electric meters. In addition, 52,000 meters will be replaced with meters of larger capacity to provide for customers increasing demands.

The appliances of approximately 20,000 gas customers principally in the Paterson area, will be converted from mixed gas operation to the use of straight natural gas during 1961 natural gas is introduced in new areas. This will bring the number of customers served with straight natural gas by the end of 1961 to about 30,000, or approximately 60 per cent of all the customers in the company's gas territory. To assure adequate gas service to these customers during times of peak demand, the company plans to convert some of its production facilities to make a high BTU oil gas to augment the supply of natural gas. Also, it plans to construct an additional natural gas metering station and several gas regulating stations to serve the customers in the newly converted areas.

Gas heating installations increased by about 29,000 during 1960, and approximately the same number is expected to be added this year. To provide gas service for these new installations and for the increasing needs of present customers, the company will install approximately 24,600 services and 27,700 meters and 300 miles of mains.

Industrial and commercial development and population growth have combined to augment the demands for service. Based on the 1960 census, there has been an increase in population of 24 per cent since 1950 in the area of New Jersey served by the company, with the suburban area increasing 37 per cent. The company participates in many activities which have as their aim the optimum development of the numerous economic advantages of this area. From such development and from sales promotion efforts, Public Service expects continued substantial growth in sales of electricity and gas.

Puget Sound Power & Light Company

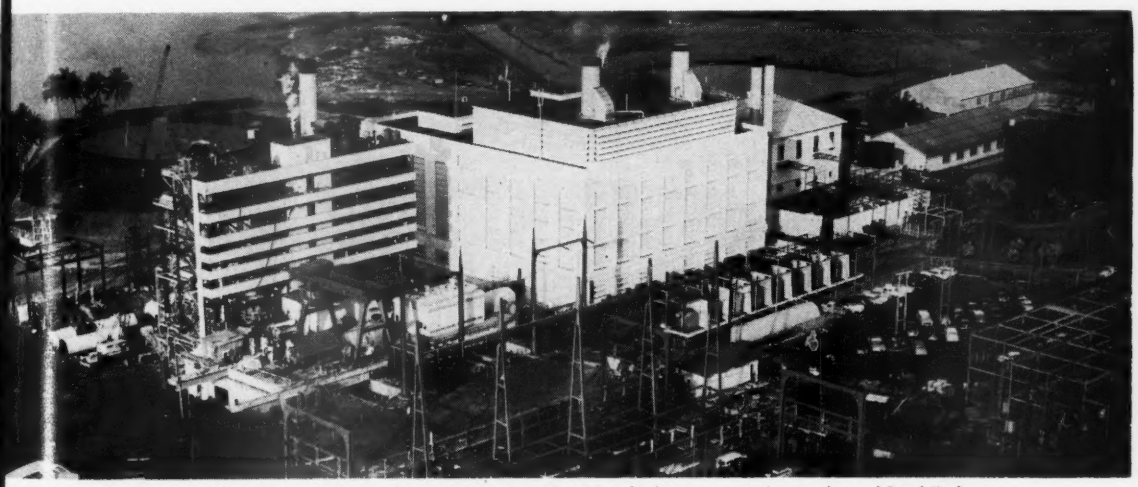
Seattle, Washington

J. H. CLAWSON, *President*

An ample supply of low-cost hydroelectric power is helping to create the promise for a new era of economic progress and prosperity in the Pacific Northwest. New frontiers of better business and better living are being discovered in the Puget Sound-Cascade region of western Washington, where Puget Power serves an expanding population of some 830,000 people. The present growth and tremendous potential of this region promise great challenges and opportunities for the future. Puget is planning now to meet a peak demand which is expected to exceed 1.2 million kilowatts by the middle of this decade—about double the company's peak load in 1960.

Population in the company's serv-

(*Continued on Page* 98)



Outdoor-type plant nears completion alongside Hawaiian Electric's suburban power station on shore of Pearl Harbor.

OWER BEHIND HAWAII'S PROGRESS

Running on the beach is an attractive side, but only one side, of life in Hawaii. The islands have a busy and expanding economy, too. While sugar, pineapple, tourism and large defense establishment remain basic to this economy, construction and diversified manufacturing are adding new dimensions. Never before has Hawaii experienced more rapid growth. One indication of this progress is the modern expansion of the Hawaiian Electric Company, which serves Honolulu County on the Island of Oahu. During the Fifties, our utility plant investment more than doubled. In 1960, our 70th year, nuclear power emerged as a strong possibility in our planning for the new decade. During this period our plant and facilities will again be increased as much as they have been in our entire previous history. Progress in the 50th State is truly electrifying.

THE HAWAIIAN ELECTRIC CO., LTD.

Honolulu • Hawaii

ice area has risen 40 per cent over the past ten years—more than twice the state average. Seattle ranked seventh among the first 25 cities of the nation for increased number of households last year and population in the Seattle suburban area has increased 86.3 per cent since 1950. State population is expected to increase 22 per cent in this decade compared to a national rate of 16.8 per cent. Nearly 60 per cent of Puget's total revenues are derived from the homeowner's use of electricity.

The Puget Sound region weathered the effects of the national recession fairly well. By the end of 1960, the Boeing Airplane Company had c ated a backlog of $2,139,000 in c tracts. The greatly diversified ind trial base of the area helped bo Seattle-King county payrolls fr $224 million in 1950 to $656 mill in 1959.

Customer usage of electricity c tinued to climb in 1960, helping produce a new record in operati revenues—$37 million—up 5 cent over 1959. Kilowatt-hour s rose 8.5 per cent and Puget ad 8,399 new customers to its lines.

Puget's residential customers c sumed an average of 9,091 kilowa hours during the twelve months e ed February 1961, and the compa ranked first among all investor own electric utilities on the Pacific co in increased usage for the year, w 378 kilowatt-hours. By comparis the entire investor-owned electric dustry in the United States repor an average residential consumpti of 3,924-kilowatt-hours for the sa period, an increase of 205 kilowa hours.

In the past five years, Puget's "t tal electric" customers have increas from 225 to over 16,000. Su growth is indicative of the future a has required the company to m than double its investment in pl from $111 million at the beginni of 1955 to over $227 million tod

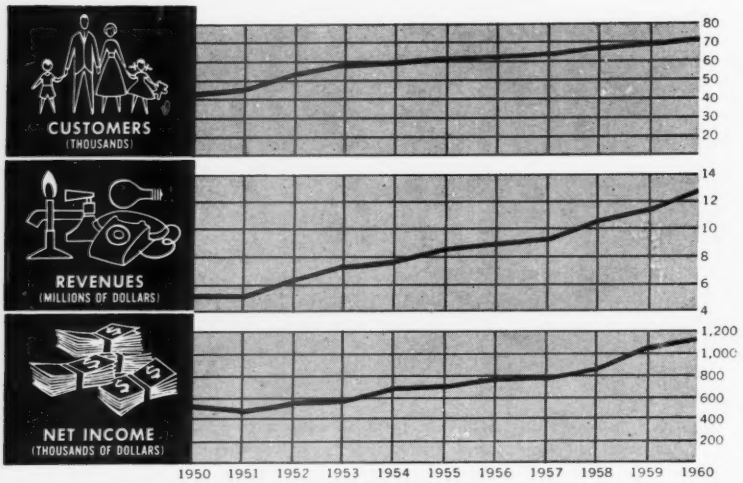
With an ample power supply sured for the foreseeable futu Puget is taking positive action to tract new industry to the Pu Sound region—now being recogni as one of the nation's most rapi growing consumer markets. Seve new industrial parks located in service area promise a substantial crease in the company's industr load, which has maintained an av age annual rate of nearly 11 per c over the past five years. This creasingly diversified load inclu widely varying economic activit which range from the refining petroleum to the brewing of bee

Century 21, a world scientific e hibition opening in Seattle in Ap 1962, is expected to add new m mentum to the already accelerat growth of population and indust creating even greater demands f low-cost hydroelectric power.

The vibrant spirit of Century has captured the imaginatio of new generation in Puget Sound cou try. We believe in the future of th region and are pledged to provi power for progress.

A Growing Public Utility

California-Pacific Utilities Company operates electric, gas, water and telephone services. Its territory includes 86 communities situated in 25 counties of California, Oregon, Nevada, Idaho, Wyoming, Utah and Arizona. During the census decade ended in 1960, the population of the counties in California-Pacific Utilities territory increased 47 per cent, while that of the United States as a whole increased 18 per cent.



Between 1950 and 1960, number of customers increased from 40,813 to 71,203; total revenues from $5,055,809 to $12,315,639; and net income from $529,481 to $1,168,376; representing increases of 74 per cent in customers, 144 per cent in revenues, and 121 per cent in earnings.

California-Pacific Utilities Company

550 CALIFORNIA STREET • SAN FRANCISCO 4, CALIFORNIA

South Carolina Electric & Gas Company

Columbia, South Carolina

S. C. McMeekin, *President*

A $7[illegible] million construction program over a three-year period ending 1963 has been forecast for South Carolina Electric & Gas Company.

Expenditures for this year are estimated at $24 million, of which $20.3 million is assigned to electric property and $3.7 million to gas and other properties.

Almost half ($11.7 million) of the 1961 budget will go for additions to generating stations, including the purchase of the recently announced gas turbine package power plants for the Beaufort and Charleston areas. One of these units will be placed in each of these areas in June and two additional units are scheduled for purchase during the remainder of the three-year period.

A $40 million steam electric generating station at Canadys in Colleton county will require more than [illegible] million of the 1961 budget.

Other electrical facility improvements scheduled this year are $1.5 million on the extension of high voltage lines and substations, and $6.3 million for the construction and expansion of the distribution system. These are required to take on new customers and to provide adequate reserves to meet increasing power requirements.

These projected expenditures will place the company's total electric generating capability well beyond the million-kilowatt mark.

The company's annual report, recently released, shows that SCEGCO customers (over the 23-county service area) continued to average a higher use of electricity at a lower cost than did the average family over the rest of the country.

Residential customers of SCEGCO averaged using 5,284 kilowatt-hours which is 39 per cent above the national average, and they paid an average rate of 2.16 cents per kilowatt-hour, 13 per cent below the national average.

During 1960, the company added more than 4,500 electric customers to its lines, of which more than 4,000 were residential.

The utility paid taxes amounting to more than $13.5 million, of which the federal government received 62 per cent. The report said that taxes were the largest single operating expense item for 1960, taking more than 23 cents out of each revenue dollar. The summary compared these taxes to that of TVA, which amounted to about 2⅜ cents per revenue dollar in 1959, and taxes of all the REA co-operatives in the United States, which amounted to 2.85 cents per revenue dollar.

Total taxes of the company amounted to more than $57 a customer, while taxes of all the REA co-operatives amounted to $3.54 a customer in 1959.

The annual report pointed out instances of industrial development in the SCEGCO service area, and stated that "the many attractions which the

(*Continued on Page* 100)

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London Correspondent:
PHILIP HILL, HIGGINSON, ERLANGERS LIMITED

state has to offer industry make it reasonable to assume that the company's business will continue to grow in the years ahead."

It was also noted in the annual report that during 1960 in South Carolina, approximately $210 million was committed for the construction of new industrial plants and the expansion of existing industry in South Carolina, as compared with $207 million in 1959, or a grand total of $417 million for the two years. New jobs were created for more than 25,000 employees during the two-year period.

In addition to the many new pla placed in operation in SCE&G service area during 1960, othe si are being investigated by manufa turers of such diversified prod cts electronic equipment, electrical equi ment, shoes, wood products, plas products and chemicals.

Southern California Edison Company

Los Angeles, California

New records in virtually every phase of Southern California Edison Company's operations characterized activities during 1960, it was noted by Harold Quinton, chairman of the board and J. K. Horton, president, in the annual report to stockholders. Gross revenue advanced to $306,675,815, up 8.8 per cent over 1959. Kilowatt-hour sales were up 11.1 per cent, reaching a new high of 17,440,925,000. Sales to domestic customers rose 13.5 per cent, the largest rate of increase since 1952. Sales to commercial customers advanced 13.1 per cent.

Two additional generating facilities were added during 1960. In March, the Mammoth Pool hydroelectric project, located in the High Sierra north of Fresno, was completed. This project includes a 123,000 acre-feet storage reservoir, an eight-mile tunnel and a powerhouse containing two units with a total maximum capacity of 150,000 kilowatts. This latest addition to the vast Big Creek-San Joaquin river development cost nearly $49 million and raised the total investment in the entire complex of eight hydro-electric stations to more than $214 million.

In December, the third unit at the Huntington beach steam station was added to the system. The new unit, with a capacity of 230,000 kilowatts, is the first computer-automated steam-electric generating unit in the world. The fourth unit at Hunt ngt beach will be similar in constr ucti to the unit just completed nd scheduled for operation in July 196

Also under construction a e t third and fourth units at Al mit steam station near Long Beac bo scheduled for completion in 196 These units will each have a c pac of 310,000 kilowatts, larger than a units yet added to the company s sy tem. Presently in the planning sta for completion in 1963 is the thi unit at Etiwanda steam station ease ou San Bernardino county. This unit tional also expected to be of 310,000 kil n will watt capacity.

The construction budget for 19 stem t is estimated at $124 million. est of

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NEW HAVEN MINNEAPOLIS HARTFORD HAGERSTOWN WINCHESTER

LONDON ZURICH CARACAS HONG KONG

Southwestern Electric Power Company

Shreveport, Louisiana

J. ROBERT WELSH, *President*

DURING 1960 we enjoyed the greatest increase in average annual use by our residential customers that we have had in the history of our company. The realization that modern electrical living provides unmatched pleasure in our daily lives and adds a lasting value to residential property has contributed mostly to our 1960 success. Most home owners know that electric built-in appliances have values that can be realized for years in the future. We have used the themes, "Electricity Is The Only Utility That Has Not Gone Up In Price" and "Modern Electrical Living Has Lasting Value," in stimulating our customers to enjoy more and more electrical appliances.

Dealers' sales of electrical appliances so far in 1961 are not very far behind dealers' sales for the corresponding period in 1960, so we are redoubling our efforts to assist dealers to promote the sale of electrical appliances. While the construction of new homes at present may not be in the volume we would hope for, we have the opportunity for more personal attention to each building project. Perhaps we shall learn that such an opportunity can produce better results than we have been able to achieve in the past.

The theme of this year's Edison Electric Institute Convention, "Targets for Tomorrow in Electric Power," is a timely one, and we realize that today is the tomorrow we were looking forward to yesterday.

Southwestern Public Service Company

Amarillo, Texas

A. R. WATSON, *President and General Manager*

WITH a change in the administration in Washington, we in electric utility industry must increase our efforts to promote sound national economic policies which in turn will assure the free enterprise system to perform for the best interest of the country.

The probable attitude of Congress toward the various proposals of the administration should in the final analysis determine our course in the next few years. I believe the majority of the members of Congress have faith and confidence in our industry and the American business system. Some of the appointments that have been made to administrative agencies will undoubtedly present many problems for the electric industry.

We must redouble our activities to be good citizens in the areas we are privileged to serve and use our influence for common sense in all phases and levels of government.

The economy in our operating area is at a high level and our load growth is following quite close to our estimate as well as the past percentages. Our annual report contains practically all of the pertinent data with the possible exception that we have placed an order with the General Electric Company for a 210,000-kilowatt capability turbogenerator to be installed at our Plant X in Lamb county, Texas. This unit should be in operation in the early spring of 1964.

We are also making joint studies with other electric utility companies for interconnections, and are hopeful that these studies will materialize in definite plans being made and consummated for heavy interconnections.

Tampa Electric Company

Tampa, Florida

W. C. MACINNES, *President*

ALTHOUGH nationwide business conditions seem to have been mixed in character during the past year, activity in the area served by Tampa Electric Company has been about average.

Tampa Electric's kilowatt-hour sales, which for 1960 were up 12.6 per cent over 1959, were more than double the national average of 6.2 per cent. At the end of 1960, average annual use per residential customer stood at 5,188 kilowatt-hours, compared with the national average of 7,190.

Our company is fortunate in serving the fastest growing area in the Southeast. The area served by Tampa Electric now has a population of more than 510,000—having increased 40 per cent since 1950. The Florida Development Commission expects a population growth of 73 per cent in the Tampa-Central west coast area of Florida, compared to an over-all expected 50 per cent growth for the state during the next ten years.

Whereas installed kilowatt capability has grown 55 per cent in the Southeast since 1955, it has been necessary for our company to increase capability by 145 per cent to keep ahead of the electrical needs of our growing area, and we feel that continued growth and development of the area will require that Tampa Electric invest an additional $83 million during the next three years in constructing new facilities to keep ahead of our area's electrical requirements.

Of course, much of our company growth cannot be attributed to population growth and increased industrial development. We credit much of the success of our rapid increase in consumption per customer to our advertising and sales promotional activities, which have been geared for quite some time to promote the total electric home, including electric heating and cooling.

During 1960, a majority of the central air conditioning systems installed in our area were heat pumps. So far in 1961, new heat pump installations are running about 48 per cent ahead of 1960. Altogether, we now have more than 3,600 central heat pump systems and 5,200 electric space heat installations on our lines. (Tampa Electric went over the 150,000 total customer mark in 1960.)

Our industrial sales showed a 14 per cent increase during 1960, and thus far in 1961 have continued to grow at about the same rate. We expect an industrial load growth of some 110,000 kilowatts in 1961 and 1962, due to plant additions and expansions, in addition to an expected increase in residential usage.

We are optimistic concerning our business growth in 1961 and the long-range future and are laying our plans accordingly.

Union Electric Company

St. Louis, Missouri

J. W. McAfee, *President*

THE Taum Sauk pumped-storage project designed to provide 350,000 kilowatts of peak carrying capability is a most interesting and, I believe promising, undertaking of Union Electric Company.

Scheduled for completion in June of 1963 it is the first purely pumped storage installation in this country. A reservoir is being built on Proffit mountain to hold about 4,350 acre feet of water. At the foot of the mountain a gravity type dam is being put across the East Fort of the Black river to impound 6,400 acre feet of water inundating a surface area of 395 acres.

A combination pumping and generating station with two 175,000 kilowatts reversible pump-turbine units will be fully automatic. When operated in one direction the equipment acts as a motor and pump to lift water from the lower to the upper reservoir. It will be used in this way during off peak periods. When the direction of rotation is reversed it becomes a water wheel-generator. Approximately three kilowatt-hours of off-peak pumping will return two kilowatt-hours of peak-carrying energy. Thus the facility is essentially an energy warehouse making possible a high use factor for efficient steam equipment.

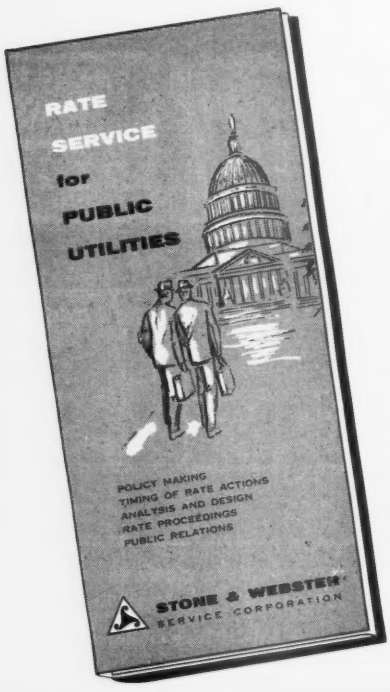
The principal economic gain to be had from Taum Sauk comes from the fact that its use will permit a two or possibly three year postponement of a new steam plant which would cost some $30 million more than Taum Sauk. The lower cost and longer service life of the storage project will more than offset the penalties that must be assessed against the pumping-generating cycle.

An item of current interest is the decision of the Missouri legislature to retain the "fair value" basis for utility rate-making purposes. A bill to require the use of net original cost as a rate base was defeated in committee.

There is, I believe, some tendency to over state the importance of the concept used in establishing rate base values. Most regulatory agencies will use a combination of rate base—rate of return which will produce a sou economic result. I feel very co fide that Union's rates would be at t same level whether "fair val e" "original cost" was used in est blis ing the base. Nevertheless m st i vestors, particularly when face wi continual inflation, feel more secu when the more realistic conc pt "fair value" is applied. Cons ider the very large sums that m st raised annually to provide ac qua and efficient service investo co fidence is of obvious importan e an I believe, offsets the simplici y a ease of application that has i duc many jurisdictions to use the o igi cost approach.

Metropolitan St. Louis, whi provides the major market for Uni Electric service, is experiencing u usual activity in civic improve me and rehabilitation. These de elo ments offer good promise for futu growth.

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Virginia Electric and Power Company

Richmond, Virginia

A. H. McDOWELL, JR., *President*

THE management of the Virginia Electric and Power Company is dedicated to a philosophy of efficient and economical operation of the company, to the end that its customers may be furnished the best electric and gas service practicable at the most reasonable cost consistent with good utility business management.

This philosophy has paid off and been borne out by the record. Vepco's ratio of operating expenses to operating revenues has decreased from 50 per cent in 1950 to a rather satisfactory 42 per cent in 1960, and a further slight improvement is estimated for 1961.

During the decade from 1950 to 1960, operating revenues increased by 100 per cent. During this same period, the balance for common stock increased by 232 per cent, notwithstanding ever-growing inflation.

Also during the past decade, Vepco's taxes increased over 251 per cent to $37,664,000; investment in property and plant increased by 177 per cent to $718 million; electric output increased nearly 160 per cent; and gas sendout increased by 494 per cent. Our average annual use per residential customer passed the 4,000 kilowatt-hour mark during January of 1961.

Such growth is indicative of the demand Vepco will have to meet in the years ahead.

Along with the steady growth in average use, the population of our service area is expanding. In the past decade our area population has grown 37 per cent. Projected figures indicate that the population of 614,000 in our northern division, alone, will reach one and a quarter million by 1980. In addition to these factors, the steady improvement of living standards, which brings widespread acceptance of laborsaving and comfort appliances, has caused an ever-growing consumption of electricity.

We are in the process of adding 600,000 more kilowatts to our system within the next three years. New 200,000 kilowatt steam generators at our Possum Point and Portsmouth stations will go into operation in 1962. Our Gaston hydroelectric project is scheduled for completion in 1963. It will account for 200,000 kilowatts of peaking capacity when it goes on the line. Just last year, we put a new unit in operation at our Chesterfield station, adding 170,000 kilowatts to our capacity. Engineering has started on a 1964 addition to the Chesterfield station which will probably be a 300,000-kilowatt addition. These increases account, in part, for our all-time high construction budget of $85 million for 1961.

As to the future, we are planning for the construction of a proposed 1 million kilowatt steam station on the Stony river in Grant county, West Virginia. The total cost of the station will be in the neighborhood of $150 million. It is planned that the station's first unit, of probably 300,000 kilowatts, will be installed by 1965. This program of Virginia Electric and Power Company, in my opinion, could be classed as indicative of future planning on the part of the entire investor-owned utility industry. Therefore, there should be no need for expanded federal subsidy.

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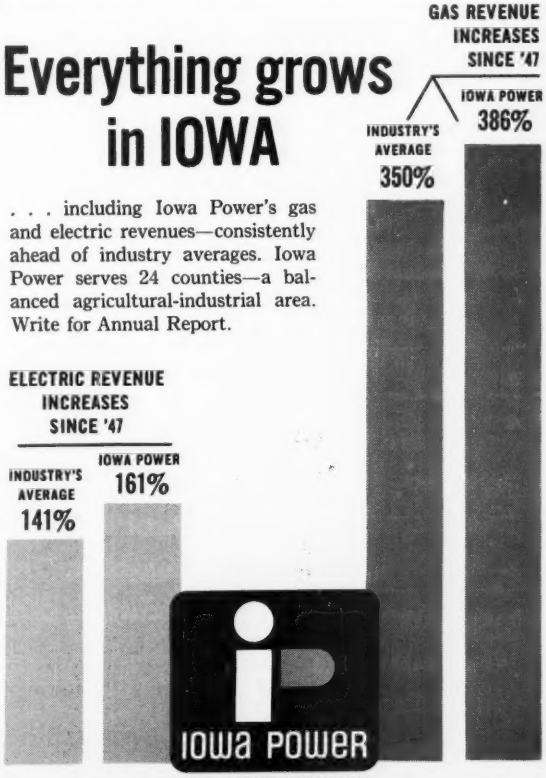
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The Washington Water Power Company

Spokane, Washington

KINSEY M. ROBINSON, *Chief Executive Officer and Chairman of The Board*

How To Survive

How could Washington Water Power continue its dynamic growth? This question became of paramount importance a few years ago to every employee of the company.

Almost completely surrounded by ambitious public utility districts and co-operatives, it seemed obvious that the opportunity for area expansion was almost non-existent. If WWP were to grow and prosper, if it was to contribute its share to continued economic development of the area it served, its growth would have to be within the area it already served. This meant increasing electric power use by our customers, the full-time promotion of electric heat for homes, schools and industry, strong emphasis on up-grading of lighting—both indoor and outdoor.

Success of this program can be readily seen in the fact that WWP's average residential customer now uses approximately 9,600 kilowatt-hours annually.

To serve these increasing power loads, the company built two big dams, Cabinet Gorge and Noxon Rapids on the Clark Fork river at a cost of $135 million. Hundreds of miles of high-voltage transmission lines were built to carry power to load centers and to inter-connect the company's electric system with that of other investor-owned utilities in the Northwest.

But even with all this evidence of growth, the company needed more, and the arrival of natural gas in the area served by the company presented the opportunity needed. In June 1955 WWP acquired through a merger natural gas distribution facilities in Spokane. Starting with almost nothing, the company now provides natural gas to ten communities and adjacent areas in eastern Washington and northern Idaho. It is seeking franchises to serve several additional communities. Approximately 3,500 gas customers were added to our mains during 1960 to bring the total of all types of gas customers over the 20,000 mark. Nine out of ten of the new homes constructed in the past year, where gas service was available, have installed gas heating systems.

Expansion of our natural gas service should, and does, offer us a tremendous area of vertical growth. What we have, and will continue to take full advantage of that opportunity.

WWP management is firmly convinced that whenever and wherever it can reasonably do so, a utility must and should provide leadership in developing the economic potential of the area it serves. This belief prompted the company's entrance into the field of industrial park development.

In 1960, WWP acquired a controlling interest in the Spokane Industrial Park Inc., a former navy supply depot. Covering over 53 acres, the park now has 26 large units and several smaller units totaling over three million square feet of industrial buildings. It is the largest operating industrial park in the Pacific Northwest.

An aggressive promotion program to obtain tenants for the park has been designed. Already more than 30 commercial or industrial firms have leased space. WWP is confident the park will soon fill up with job creating economy-boosting tenants.

These are the major moves the company has made to provide opportunity for growth. Numerous other programs on a smaller scale are being carried out to promote use of the services the company has to offer.

These are the obvious things company in WWP's position can do to maintain a strong position, to contribute to the economic well-being of the area it serves. The other side of the coin presents the problem: Will investor-owned utilities be permitted



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o surv ve in an area that has long een d minated by and virtually de- enden upon the whims of the fed- al g vernment?

No ne can accurately predict what he "N w Frontier" will mean to in- estor- owned utilities in the Pacific orth est or throughout much of the ation Spokesmen for the new ad- inist ation have said that private nterp ise must be given the oppor- nity and encouragement to provide obs, lead the way to a new era of cono ic plenty. At the same time, ther spokesmen for this same ad- inist ation have indicated, by word nd ction, that they plan a tre- end us expansion of federal power hrou hout the country and that the xpan ion of non-federal public ower will be encouraged and assisted hen ver and wherever possible.

Ign ring to some extent the words, nd considering only the actions to ate, it would appear that the "New rontier" will mean a difficult period the investor-owned portion of the lectric industry. We can all hope hat this first impression is wrong, r at least overly pessimistic, and that s time passes, public power zealots n the new administration will modify heir program to bring them more n line with what the election results bviously indicate to be the desires f the American people. Not by the most extreme perversion of the vote esults in the last nationwide election an anyone come up with proof that here was any mandate for public ower.

If we are to assume that the next ew years will be difficult ones for our industry, we come to the next ogical question: What do we do bout it?

We must take some positive action on both the local company level and on the industry level.

On the company level we should step-up our public relations program. Plan a continued ad program to tell our free enterprise program, aggressively promote the use of our speakers' bureaus—and film libraries, accelerate our customer contact program find better ways to tell our tax story, give top management support and direction to our entire public relations program.

We need to give serious attention to our industry-level public relations Many of the most capable men and women associated with our industry have given freely of their time and considerable talent to industry public relations and yet we are losing ground steadily.

We are losing the battle of words. Our cautious approach to every issue has not been able to compete with such emotion-appealing words as "master-plan," "brain-washed," "monopoly," "smug," "front organizations," "predatory," and so on, that are generously sprinkled in to every reference to the investor-owned utility industry. We have been trying what might be called the school teacher "Let's educate 'em" approach, while exponents of socialized power have adopted the more colorful, more appealing approach of the circus pitchman.

We have dissipated our energy, our effectiveness, with too many committees, too many meetings, and too many associations. It is past the time when we should attempt to streamline our industry-level public relations program. We must eliminate the duplication of effort, the competition of associations, the "I thought someone else was doing that" attitude that is the natural result of too many cooks. This is a job that must be done, and top-level management of the many companies cannot leave the task to anyone else. They, and they alone, can take the necessary action. This, in my opinion, is the first and most important step we must take if we are to come up with an effective, support-winning public relations program.

Finally, we must designate an industry spokesman. He probably would be and should be the man at the head of our new, single industry-level Public Relations organization. This spokesman should be given the authority to speak for and on behalf of the industry. He would be ready at all times to answer for us, to defend us, and to promote our best interests. He would direct the activities of a corps of people competent to defend our industry wherever the need should arise. He should also have the wholehearted support of each and every investor-owned utility on the local level in carrying out his industry-wide programs.

These things we must do. When we do them we will have an effective program and will not easily be subject to the foibles of any politically-designed program. Until we do take these steps, we will be paying lip service to industry level public relations and will be paying the price in dollars and in ineffectiveness.

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Western Light & Telephone Company, Inc.

Great Bend, Kansas

E. P. HENNEK, *President*

CONTINUED growth and development for Western Light & Telephone Company, Inc., was recorded in 1960. The increased use of electricity by our customers was a continuation of the development established in the 1950's. In 1960 three new transmission lines were added to the system at a cost of $735,000. Operating revenues increased 6.8 per cent and net income increased 9.1 per cent. New highs were established for kilowatt-hours produced and sold.

Telephone customers served and telephone revenue received were at an all-time high. New capital investment in our dial conversion program amounted to $1.2 million.

Stockholders approved a two-for-one split of the common stock of the company to be effective April 20, 1961. This split should encourage a wider distribution of company ownership.

Change from an agricultural economy to an agricultural and industrial economy has been an economic factor in the territory served for the past decade and will continue to be in the 1960's. It has and will continue affect the operations of our company. This is true, not only for us as a company, but for the people and towns and cities we serve.

The increased demand for electric power in central Kansas during the past ten years has made necessary changes in the physical plant of the company. Ten years ago light transmission lines and more or less isolated generating stations were adequate to provide service to the company's customers. Changing demands of the 1950's dictated the installation of more economical and larger central generating stations, and high voltage transmission lines to cover the area.

In the telephone property, the manually operated common battery exchange has given place to the dial exchange—1960 saw the conversion to dial of seven exchanges.

As our high voltage transmission system developed it made possible heavy transmission interconnections between the company and neighboring utilities. A systematic plan of electric interconnection has been developed over the past few years and 1961 will see the completion of a 138 kilovolt interconnection to be added to our other interconnections already in service. This new line will be part of a system of transmission lines which will cover Kansas by 1968.

As our company has increased its investment in generation and transmission facilities, load building and industrial development programs have been set up to ensure the loads necessary to support the new investments.

Although the economics of central Kansas, which we serve, will change materially in the next ten years, the requirements for electric energy will increase as they did in the 1950's. The changing economy will present many challenges and opportunities for our company. We confidentially expect that population growth, increased industrialization, further development of natural resources, and more efficient agricultural production will result in development throughout our territory.

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May 24, 1961

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The several Underwriters have agreed, subject to certain conditions, to purchase any unsubscribed shares and, both during and following the subscription period, may offer shares of Common Stock as set forth in the Prospectus.

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Wisconsin Electric Power Company

Milwaukee, Wisconsin

DESPITE some decline in general business activity and the adverse effects of unseasonable weather in 1960, the Wisconsin Electric Power Company System served more customers than ever before and sold more electricity and gas than in any previous year, G. W. Van Derzee, chairman of the board and L. F. Seybold, president, stated in their annual report to stockholders. A record breaking peak load of 1,370,000 kilowatts was established on the system on November 15, 1960.

Substantial progress was made in 1960 on a continuing program to expand and improve the physical facilities needed to meet present demands for services and to anticipate increased demands in the years ahead. Gross additions to electric, gas and other property and plant required expenditures of $42.6 million in 1960. Of this amount, approximately $37.4 million was required for additions to electric utility plant. It is estimated that expenditures for additions and improvements to utility plant in 1961 will approximate $44 million.

The largest construction program in 1960 was work on the sixth generating unit at Oak Creek power plant. When placed in service late in 1961, the new unit will add 275,000 kilowatts of capacity and will increase the total capacity of the Oak Creek plant to 1,050,000 kilowatts. Oak Creek power plant is the largest and newest of the 24 steam and hydroelectric plants which provide a dependable generating capacity of 1,650,210 kilowatts for the system.

Wisconsin Power and Light Company

Madison, Wisconsin

CARL J. FORSBERG, *President*

THE results of planning, building and improving which identifies the investor-owned electric utility business is a matter of record and it is important that we identify our companies to the American people as a vital factor in the continued growth of our country.

Through study and constant improvement of equipment, development and adoption of better methods of operation, study of customer considerations and needs, and by building facilities which are more than adequate to meet the phenomenal increases in electric use, investor-owned companies can provide the power that the expanding national economy needs.

This new growth will be accomplished through the use of new citizen generated capital. It also represents increased strength of government because the tax base on which government operates is constantly broadened through private initiative. The voluntary support by private investors of this fast-growing business has come because the entire growth program has been in the interest of the consumer and in the wholesome tradition of free enterprise. In Wisconsin Power and Light Company we have an effective shareowner relations program through which we schedule regular meetings of management with 14 district shareowner committees to discuss company affairs. Information from these meetings is sent to all district shareowners in letters signed by committee members. We also schedule general meetings every three years with all Wisconsin shareowners within our operating territory. With 26,000 of our 40,000 shareowners living in Wisconsin, we are able to keep these owners of the company very well informed on company affairs.

The investor-owned utility companies all have told and retold the story of their business aims and objectives to the investing public, and this story is believed because the results are evident to everyone.

Demands for increased and improved service have continued. In Wisconsin Power and Light Company, we are constantly studying the physical characteristics of our company and the service needs of the communities in our operating area with the view of providing the best in service at the lowest equitable cost to our customers.

Recently, we signed a Power Pool Agreement with the Wisconsin Public Service Corporation, which will level out the financial burden of power plant construction for both companies and will bring considerable savings in construction costs over the years. In co-operation with the University of Wisconsin, Wisconsin Power and Light Company and other Wisconsin investor-owned electric utility companies in the state, have carried on a research program covering the application of electricity to many farming operations. This research work is done at the Wisconsin Utilities Association's Electric Research Farm at Madison, Wisconsin, giving us the practical approach to farming problems and helping us to tune our service to the real needs of the rural customer.

There is no stopping place in the onward march of electric service even in times of recession, because the growth of today is done to meet the needs of tomorrow. These are needs not predicated on fad, or whim, or political expediency, but rather on a real need for stability in our national economy.

As the investor-owned companies pioneered the way from the early days of uncertainty, so they continue the work of pioneering in this day of great advancement. The industry stands on the threshold of wide use of nuclear energy in its business and it is investing millions to make this new fuel feasible and practical.

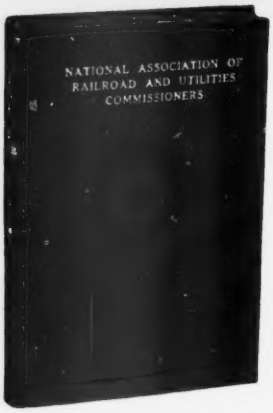
Each accomplishment attained discloses vast unexplored areas of possibility for the future. The investor-owned utility industry is fully aware of its growing responsibility, and it must and will maintain its responsible position of leadership in economic affairs.

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INDEX TO ADVERTISERS

A

*Abrams Aerial Survey Corporation
*Allen & Company
Allegheny Power System, Inc. 83
Allis-Chalmers Manufacturing Company 14-15
American Appraisal Company, The 110
American Gage & Mfg. Company, The 77
American Motors Corp. 26
Anaconda Wire and Cable Company 34
Analysts Journal, The 50
Appeal Printing Company, The 53

B

Bankers Trust Company 19
Bechtel Corporation 110
Bilco Company, The 84
Black Hills Power and Light Company 91
Black & Veatch, Consulting Engineers 107, 110
Blyth & Company, Inc. 9
Boni, Watkins, Jason & Co., Inc. 110
Boston Edison Company 23
Bozell & Jacobs, Inc. 29
Brown Boveri Corporation 17
Burns & McDonnell, Engineers 115
Burns and Roe, Inc. 110

C

California-Pacific Utilities Company 98
Carter, Earl L., Consulting Engineers 115
Central and South West Corporation 85
Chase Manhattan Bank, The 41
Cincinnati Gas & Electric Company, The 77
Coffin & Richardson, Inc. 115
Colorado Fuel and Iron Corporation, The 89
Columbia Gas System, Inc., The 22
Combustion Engineering, Inc. 42-43
Commonwealth Associates, Inc. 63, 110
Commonwealth Services, Inc. 63, 110
Consolidation Coal Co. 13
Consolidated Gas and Service Company 115
Continental Illinois National Bank and Trust Company of Chicago 25

D

Dames & Moore 111
Day & Zimmermann, Inc., Engineers 111
Dayton Power & Light Company, The 87
Detroit Edison Company, The 16
Drake & Townsend, Inc. 111

E

*Eastman Dillon, Union Securities and Co.
Ebasco Services Incorporated 20-21
*Electro-Motive Division, General Motors
Empire Gas Engineering Company 111

F

First Boston Corporation, The 7, 106
First National City Bank 47
Florida Power & Light Company 24
Ford, Bacon & Davis, Inc., Engineers 111
Foster Associates, Inc. 111
Francisco & Jacobus 112

G

Gannett Fleming Corddry and Carpenter, Inc. 115
General Electric Company Outside Back Cover
Gibbs & Hill, Inc., Consulting Engineers 112
Gibson, A. C., Co., Inc. 58
Gilbert Associates, Inc., Engineers 33, 112
Gilman, W. C., & Company, Engineers 112
*Glore, Forgan & Company
Goodbody & Co. 85

H

Halsey, Stuart & Company, Inc. 105
Harriman, Ripley & Company, Inc. 99
Harza Engineering Company 112
Hawaiian Electric Co., Ltd., The 97
Henney Motor Company, The 51
Hoosier Engineering Company 112
Hughey & Phillips, Inc. 69

I

*International Business Machines Corp.
International Paper Company, Wood Preserving Division 4
Iowa Electric Light and Power Company 6
Iowa Power and Light Company 10
Irving Trust Company 5

J

Jackson & Moreland, Inc., Engineers 68, 11
Jensen, Bowen & Farrell, Engineers 11

K

Kellogg, M. W., Company, The 4-
Kidder, Peabody & Company Inside Front Cover, 73, 7
*Kuhn, Loeb & Company
Kuljian Corporation, The 11

L

*Langley, W. C., & Co.
Leffler, William S., Engineers Association 11
*Lehman Brothers
*Line Material Industries
Loeb, (Carl M.) Rhoades & Co. 71
Long Island Lighting Company 38
Lougee, N. A., & Company 11

M

*Main, Chas. T., Inc., Engineers
Merrill Lynch, Pierce, Fenner & Smith, Inc. 88
Miner and Miner, Consulting Engineers 115
Montana Power Company, The 27
*Morgan Stanley & Company
Mosler Dropository Corporation, The 60

N

National Association of Railroad & Utilities Commissioners 108
National Union Electric Corporation 51
New England Electric System 52
Niagara Mohawk Power Corporation 48
Northern Indiana Public Service Company 81

O

Oklahoma Gas and Electric Company 70
*Osmose Wood Preserving Co. of America, Inc.

P

Pacific Gas and Electric Company 31
Peabody Coal Company 35
Pennsylvania Power & Light Company 36
Pioneer Service & Engineering Company 28, 113
Potomac Electric Power Company 11
Public Service Electric and Gas Company 46

R

Ransom, R. A., Company, Inc. 113
Recording & Statistical Corporation 72

S

Salomon Brothers & Hutzler 37
Sanborn Map Company, Inc. 65
Sanderson & Porter, Engineers 114
Sargent & Lundy, Engineers 39, 114
Schulman, A. S., Electric Co., Engineers 115
*Smith, Barney & Company
Southwestern Public Service Company 93
Standard Research Consultants, Inc. 114
Stone & Webster Engineering Corporation 114
Stone & Webster Service Corporation 102
Sverdrup & Parcel, Inc., Engineers 115

T

Tucson Gas, Electric Light & Power Company 59

U

Union Electric Company 67
United Engineers & Constructors, Inc. 114
United Nuclear Corporation 61
United States Motors Corporation 30
Utah Power & Light Co. 18

V

Virginia Electric and Power Company 75

W

Western Light & Telephone Company, Inc. 94
Westinghouse Electric Corporation 44-45
White Motor Company, The Inside Back Cover
White, Weld & Co. 100
Whitman, Requardt and Associates 114
Williams, A. W., Inspection Company, Inc. 115
Wisconsin Electric Power Company 32

Professional Directory 110-115

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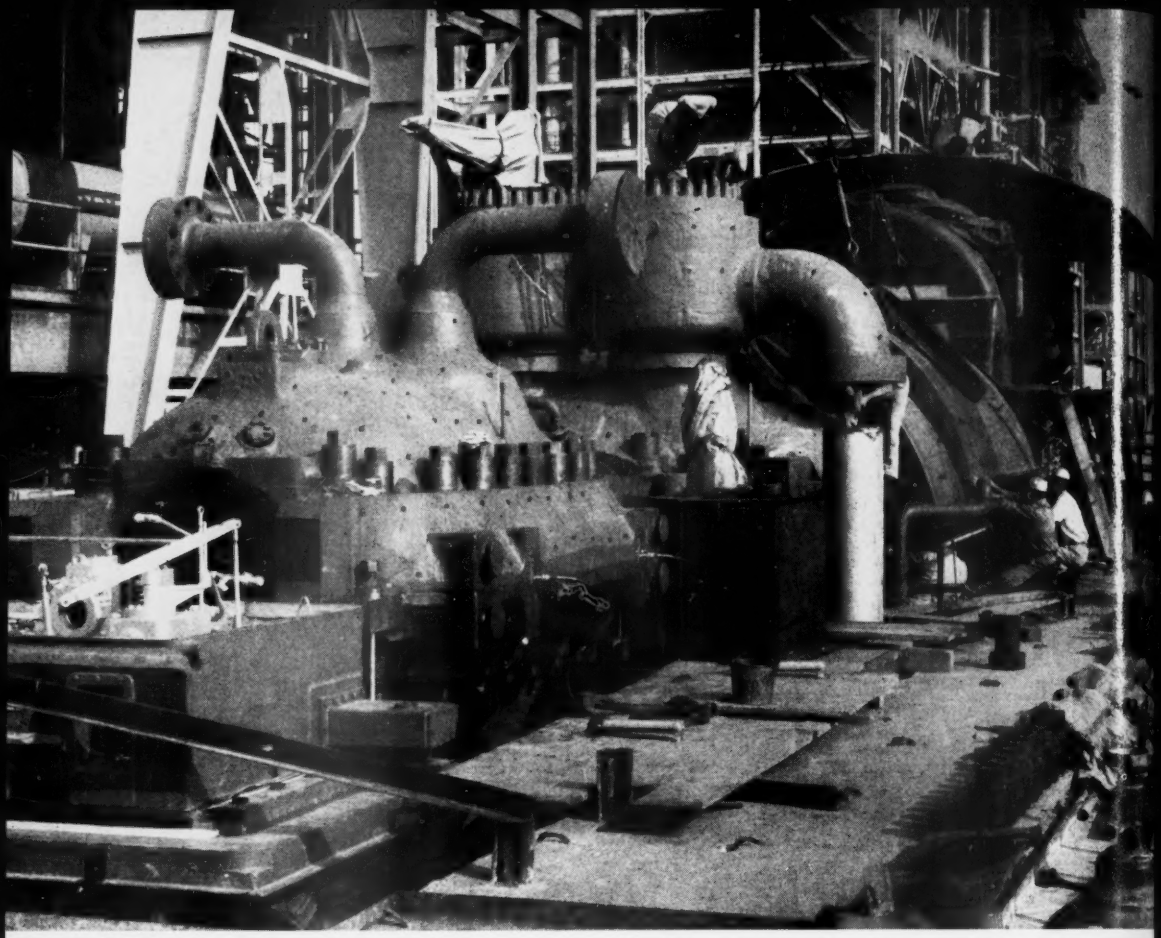
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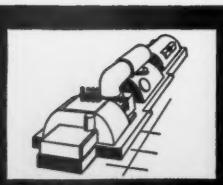
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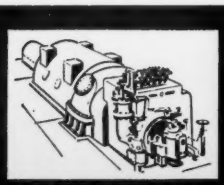
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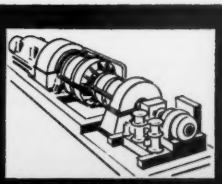
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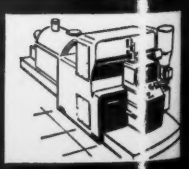
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